THE

REGISTER of TIME.

THE
REGISTER of TIME:
OR, A
PERPETUAL CALENDAR.
PART I.
Containing the
JULIAN CALENDAR.
Together with a
PARTICULAR TREATISE on EPACTS.

By le Chevalier *FRANÇOIS* SALUCES DE LA MANTE,
Of the Order of Malta.

> *Multa dies, variuſque labor mutabilis ævi*
> *Retulit in melius.* . . . .
> . . . . Virg.

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* You will find at the end of the *Appendix* a particular Table of the Contents of it.

THE USE OF TABLE I.

LET the Year of our Lord 1913 be propoſed for example: divide, firſt, the 19 hundreds *(a)* by the number 7, and you will have 5 for a remainder; then, look for the 13 units *(a)* in the Table, and coming down the ſame column till you meet with the number 5, there you will find in the ſame ſquare, the letter F, which is the Dominical Letter for the Year of our Lord 1913.

You muſt obſerve, that when the hundreds are under 7, no diviſion needs then take place. For example: were 15 the given Year of our Lord, you would find the Dominical Letter F in the ſquare not numbered; if the Year were 115, you would find G in the ſquare numbered 1; &c. but were 715 the Year, now you muſt divide the 7 hundreds by 7, and as nothing remains, you will find in the ſquare not numbered the Dominical Letter F. &c.

You will further obſerve, that the figures in red expreſs the Biſſextiles, and that they are repeated, becauſe the Biſſextiles have two Dominical Letters; the one, viz. that on your left, to be made uſe of from the beginning of the Year to the Feaſt of St. Matthias; and the other, from the Day of this Feaſt incluſively to the end of the Year.

THE USE OF TABLE II.

THE Uſe of this Table is exactly ſimilar to that of Table I, except, that heed ſhall be taken here to reverſe the order of the Dominical Letters in the Biſſextiles. For example: were 9 Years before Chriſt, the propoſed number, you would find F, G, which you muſt make G, F.

THE USE OF TABLE III.

WHEN you have got the Dominical Letter for a Year, if you look in this Table under it, you will find the Day of the Week every Month in the Year enters on. Suppoſe, for example, the Dominical Letter of the Year propoſed, to be C: you look under C in the Table, and find Friday againſt January; Monday againſt February; Monday againſt March; Thurſday againſt April; &c. that is to ſay, the firſt Day of January is a Friday; the firſt of February, a Monday; &c. In the Biſſextiles, you muſt take care to look for the reſpective Months under the proper Dominical Letter. Suppoſe, for example, to have G, F: you muſt look under G, for January and February; and then, under F, for all the other Months.

(a) By hundreds, it is, as well here as hereafter, underſtood the hundreds with all the preceding figures; and by units, it is underſtood the tens of units likewiſe, or, which comes to the ſame, the two laſt figures.

TABLE I.

A
PERPETUAL TABLE
TO FIND THE
DOMINICAL LETTER
For Years after Christ.

00	00	01	02	03	04	04
05	06	07	08	08	09	10
11	12	12	13	14	15	16
16	17	18	19	20	20	21
22	23	24	24	25	26	27
28	28	29	30	31	32	32
33	34	35	36	36	37	38
39	40	40	41	42	43	44
44	45	46	47	48	48	49
50	51	52	52	53	54	55
56	56	57	58	59	60	60
61	62	63	64	64	65	66
67	68	68	69	70	71	72
72	73	74	75	76	76	77
78	79	80	80	81	82	83
84	84	85	86	87	88	88
89	90	91	92	92	93	94
95	96	96	97	98	99	
D	C	B	A	G	F	E
1. E	1. D	1. C	1. B	1. A	1. G	1. F
2. F	2. E	2. D	2. C	2. B	2. A	2. G
3. G	3. F	3. E	3. D	3 C	3. B	3. A
4. A	4. G	4. F	4. E	4. D	4. C	4. B
5. B	5. A	5. G	5. F	5. E	5. D	5. C
6. C	6. B	6. A	6. G	6. F	6. E	6. D

TABLE II.

A
PERPETUAL TABLE
TO FIND THE
DOMINICAL LETTER
For Years before Christ.

00	01	01	02	03	04	05
05	06	07	08	09	09	10
11	12	13	13	14	15	16
17	17	18	19	20	21	21
22	23	24	25	25	26	27
28	29	29	30	31	32	33
33	34	35	36	37	37	38
39	40	41	41	42	43	44
45	45	46	47	48	49	49
50	51	52	53	53	54	55
56	57	57	58	59	60	61
61	62	63	64	65	65	66
67	68	69	69	70	71	72
73	73	74	75	76	77	77
78	79	80	81	81	82	83
84	85	85	86	87	88	89
89	90	91	92	93	93	94
95	96	97	97	98	99	
B	C	D	E	F	G	A
1. A	1. B	1. C	1. D	1. E	1. F	1. G
2. G	2. A	2. B	2. C	2. D	2. E	2. F
3. F	3. G	3. A	3. B	3. C	3. D	3. E
4. E	4. F	4. G	4. A	4. B	4. C	4. D
5. D	5. E	5. F	5. G	5. A	5. B	5. C
6. C	6. D	6. E	6. F	6. G	6. A	6. B

TABLE III.

A
PERPETUAL TABLE
TO FIND THE
DAYS OF THE WEEK.

G	F	E	D	C	B	A	
m	tu	w	th	f	s	S	January.
th	f	s	S	m	tu	w	February.
th	f	s	S	m	tu	w	March.
S	m	tu	w	th	f	s	April.
tu	w	th	f	s	S	m	May.
f	s	S	m	tu	w	th	June.
S	m	tu	w	th	f	s	July.
w	th	f	s	S	m	tu	Auguſt.
s	S	m	tu	w	th	f	September.
m	tu	w	th	f	s	S	October.
th	f	s	S	m	tu	w	November.
s	S	m	tu	w	th	f	December.

THE USE OF TABLE IV.

LET the Year of our Lord 2816 be propoſed for example: divide, firſt, the 28 hundreds by 7, and you will have no remainder; then, look for the 16 units in the upper part of the Table, and coming down the ſame column till you are in the line indicated by 0, there you will find the number 25, which is the Cycle of the Sun for the Year of our Lord 2816.

Let the Year of our Lord 300 be propoſed for another example: as the hundreds in this example are under 7, there is no occaſion for the diviſion; ſo, you only want to look for 00 in the Table, and coming down the column till you are in the line indicated by 3, there you will find the number 1, which is the Cycle of the Sun for the Year of our Lord 300.

THE USE OF TABLE V.

THE Uſe of this Table is perfectly ſimilar to that of Table IV: ſo that, were, for example, 1780 the propoſed number of Years before Chriſt, you divide the 17 hundreds by 7, and will have 3 for a remainder; then you look for the 80 units in the upper part of the Table, and coming down the column till you are in the line indicated by 3, there you will find the number 22, which is the Cycle of the Sun for the propoſed Year 1780 before Chriſt.

NOTE. As the ſame Dominical Letters conſtantly belong to the reſpective Years of the Cycle of the Sun, ſo you may by the Years of the Cycle have the reſpective Dominical Letters. And to this effect, is the following Table.

1	G, F	5	B, A	9	D, C	13	F, E	17	A, G	21	C, B	25	E, D
2	E	6	G	10	B	14	D	18	F	22	A	26	C
3	D	7	F	11	A	15	C	19	E	23	G	27	B
4	C	8	E	12	G	16	B	20	D	24	F	28	A

TABLE IV.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE SUN
FOR YEARS AFTER CHRIST.

	00 28 56 84	01 29 57 85	02 30 58 86	03 31 59 87	04 32 60 88	05 33 61 89	06 34 62 90	07 35 63 91	08 36 64 92	09 37 65 93	10 38 66 94	11 39 67 95	12 40 68 96	13 41 69 97	14 42 70 98	15 43 71 99	16 44 72	17 45 73	18 46 74	19 47 75	20 48 76	21 49 77	22 50 78	23 51 79	24 52 80	25 53 81	26 54 82	27 55 83
0	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8
1	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
4	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4
6	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

TABLE V.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE SUN
FOR YEARS BEFORE CHRIST.

	00 28 56 84	01 29 57 85	02 30 58 86	03 31 59 87	04 32 60 88	05 33 61 89	06 34 62 90	07 35 63 91	08 36 64 92	09 37 65 93	10 38 66 94	11 39 67 95	12 40 68 96	13 41 69 97	14 42 70 98	15 43 71 99	16 44 72	17 45 73	18 46 74	19 47 75	20 48 76	21 49 77	22 50 78	23 51 79	24 52 80	25 53 81	26 54 82	27 55 83
0	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
1	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23
2	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7
3	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19
4	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
5	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15
6	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27

THE USE OF TABLE VI.

LET the Year of our Lord 129 be propoſed for example: look in the upper part of the Table for the 29 units, and coming down the ſame column till you are in the line indicated by 1, there you will find the number 16, which is the Golden Number for the Year of our Lord 129.

If the number of hundreds exceeds 18, as it is not then to be found in the firſt column, you muſt divide it by 19, and you certainly will find therein the remainder: for example; were 3807 the propoſed Year of our Lord, you divide the 38 hundreds by 19, and you will have 0 for a remainder; then you look for the 07 units in the Table, and coming down the column till you are in the line indicated by 0, there you will find the number 8, which is the Golden Number for the Year of our Lord 3807.

TABLE VI.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE MOON,
OR
GOLDEN NUMBER,
For YEARS after CHRIST.

	00 19 38 57 76 95	01 20 39 58 77 96	02 21 40 59 78 97	03 22 41 60 79 98	04 23 42 61 80 99	05 24 43 62 81	06 25 44 63 82	07 26 45 64 83	08 27 46 65 84	09 28 47 66 85	10 29 48 67 86	11 30 49 68 87	12 31 50 69 88	13 32 51 70 89	14 33 52 71 90	15 34 53 72 91	16 35 54 73 92	17 36 55 74 93	18 37 56 75 94
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5
2	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10
3	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1
5	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6
6	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11
7	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2
9	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7
10	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12
11	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
12	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3
13	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8
14	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13
15	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
16	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4
17	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9
18	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14

THE USE OF TABLE VII.

YOU muſt proceed in this Table exactly as in Table VI; ſo that, were, for example, 129 the propoſed number of Years before Chriſt, you would find 6 for the Golden Number: and if the propoſed number were 3807, you would find the Golden Number to be 14.

TABLE VII.

A PERPETUAL TABLE TO FIND THE CYCLE OF THE MOON, OR GOLDEN NUMBER, For YEARS before CHRIST.

	00 19 38 57 76 95	01 20 39 58 77 96	02 21 40 59 78 97	03 22 41 60 79 98	04 23 42 61 80 99	05 24 43 62 81	06 25 44 63 82	07 26 45 64 83	08 27 46 65 84	09 28 47 66 85	10 29 48 67 86	11 30 49 68 87	12 31 50 69 88	13 32 51 70 89	14 33 52 71 90	15 34 53 72 91	16 35 54 73 92	17 36 55 74 93	18 37 56 75 94
0	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
1	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17
2	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12
3	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7
4	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
5	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16
6	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11
7	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6
8	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
9	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15
10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10
11	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
12	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19
13	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14
14	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9
15	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
16	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18
17	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13
18	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8

THE USE OF TABLE VIII.

LET the Year of our Lord 3000 be propoſed for example: you muſt here divide the 30 hundreds by 3, and you will have no remainder; then you look for 00 units in the upper part of the Table, and coming down the ſame column till you are in the line indicated by 0, there you will find the number 3, which is the Roman Indiction for the Year of our Lord 3000.

If the number of hundreds is under 3, no diviſion then takes place: for example; were 92 the propoſed Year of our Lord, you only want to look for the 92 units in the Table, and coming down the column till you are in the line indicated by 0, there you will find 5, which is the Roman Indiction for the Year of our Lord 92.

THE USE OF TABLE IX.

WERE 3000 the propoſed number of Years before Chriſt, by proceeding exactly as in the preceding Table, you would find 4 for the Roman Indiction: and you would find 2, if the propoſed number of Years before Chriſt, were 92.

TABLE VIII.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE ROMAN INDICTION
For YEARS AFTER CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
	90	91	92	93	94	95	96	97	98	99					
0	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2
1	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12
2	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7

TABLE IX.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE ROMAN INDICTION
For YEARS BEFORE CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
	90	91	92	93	94	95	96	97	98	99					
0	4	3	2	1	15	14	13	12	11	10	9	8	7	6	5
1	9	8	7	6	5	4	3	2	1	15	14	13	12	11	10
2	14	13	12	11	10	9	8	7	6	5	4	3	2	1	15

THE

THE USE OF TABLE X.

SUPPOSE, for example, you require to know the Epact for the Year of our Lord 2536: look in the firſt Column of the Table for the 25 hundreds, and note in the ſecond the number 8, juſt ſtanding againſt them; then, look in the firſt column of Table XII for the ſame number 8, and guiding your eye laterally in one ſame line till you are in the column under the Golden Number 6, (the Golden Number for the Year of our Lord 2536) there you will find 9, which is the required Epact.

When a number, not exceeding 37499, has five figures, you muſt look for the fifth, that is, the figure which expreſſes the tens of thouſands, in the ſecond column: for example; were 27146 the propoſed Year of our Lord, you muſt (after having looked for 71 in the firſt column, and noted in the ſecond the number 23) look for 2 in the ſecond column, and note in the third the number 4: then you add 4 to 23, and you will have 27; and this is the number you muſt look for in the firſt column of Table XII, if you will proceed, and get the Epact for the Year of our Lord 27146.

But, if the given number of Years exceeds 37499, you muſt divide it by 37500, and then apply the rule to the remainder: for example; were 74928 the propoſed Year, you divide it by 37500, and will have 37428 for a remainder: now you look for 74 in the firſt column, and note in the ſecond the number 24; then you look for 3 in the ſecond column, and note in the third the number 6: you add 6 to 24, and will have the number 30, which, for being above 29, muſt be divided by 30; and as this diviſion leaves no remainder, you look for 0 in the firſt column of Table XII, and guiding your eye ſideways till you are in the column under the Golden Number 8, (it being the Golden Number for the Year of our Lord 74928) there you will find 23 for the required Epact.

THE USE OF TABLE XI.

YOU muſt here proceed as in the foregoing Table, except, that when the number of units of the given Year is above 1, you muſt add 1 to the number of hundreds: for example; were 410 the propoſed Year before Chriſt, you muſt look for 05 hundreds in the Table, and not for 04, for the reaſon, that the number of units is above 1, it being 10 in the propoſed example: but were, on the contrary, the propoſed number of Years, 400 or 401, then you muſt look in the Table for 04 hundreds, according to the general rule, becauſe, in neither of theſe examples, the number of units exceeds the number 1. It will not be amiſs, you here obſerve, that the addition of the number 1 to the hundreds is only made in regard to the uſe of this Table; for, when making uſe of Table VII, to get the Golden Number, you muſt then operate upon the real, unaltered number of Years.

TABLE X.

A PERPETUAL TABLE TO FIND THE EPACT For any YEAR in any CENTURY after CHRIST.

I				II	III
		00.	01	0	
	02.	03.	04	1	2
	05.	06.	07	2	4
	08.	09.	10	3	6
	11.	12.	13	4	
14.	15.	16.	17	5	
	18.	19.	20	6	
	21.	22.	23	7	
	24.	25.	26	8	
	27.	28.	29	9	
	30.	31.	32	10	
	33.	34.	35	11	
	36.	37.	38	12	
39.	40.	41.	42	13	
	43.	44.	45	14	
	46.	47.	48	15	
	49.	50.	51	16	
	52.	53.	54	17	
	55.	56.	57	18	
	58.	59.	60	19	
	61.	62.	63	20	
64.	65.	66.	67	21	
	68.	69.	70	22	
	71.	72.	73	23	
	74.	75.	76	24	
	77.	78.	79	25	
	80.	81.	82	26	
	83.	84.	85	27	
	86.	87.	88	28	
89.	90.	91.	92	29	
	93.	94.	95	0	
	96.	97.	98	1	2
	99. . . .		. .	2	4

TABLE XI.

A PERPETUAL TABLE TO FIND THE EPACT For any YEAR in any CENTURY before CHRIST.

I				II	III
		00.	01	0	
	02.	03.	04	29	
	05.	06.	07	28	
08.	09.	10.	11	27	
	12.	13.	14	26	
	15.	16.	17	25	
	18.	19.	20	24	
	21.	22.	23	23	
	24.	25.	26	22	
	27.	28.	29	21	
	30.	31.	32	20	
33.	34.	35.	36	19	
	37.	38.	39	18	
	40.	41.	42	17	
	43.	44.	45	16	
	46.	47.	48	15	
	49.	50.	51	14	
	52.	53.	54	13	
	55.	56.	57	12	
58.	59.	60.	61	11	
	62.	63.	64	10	
	65.	66.	67	9	
	68.	69.	70	8	
	71.	72.	73	7	
	74.	75.	76	6	
	77.	78.	79	5	
	80.	81.	82	4	
83.	84.	85.	86	3	24
	87.	88.	89	2	26
	90.	91.	92	1	28
	93.	94.	95	0	
	96.	97.	98	29	
	99.			28	

THE USE OF TABLE XII.

THE Uſe of this Table depends on that of Tables X and XI: therefore, you are there referred to.

TABLE XII.

GENERAL TABLE OF EPACTS.

THE GOLDEN NUMBERS.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	EPACTS.																		
0	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24
1	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv
2	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26
3	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27
4	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28
5	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29
6	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0
7	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9	20	1
8	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2
9	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3
10	16	27	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4
11	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5
12	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6
13	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7
14	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8
15	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9
16	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10
17	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11
18	24	5	16	27	8	19	c	11	22	3	14	xxv	6	17	28	9	20	1	12
19	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13
20	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14
21	27	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15
22	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16
23	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17
24	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18
25	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19
26	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9	20
27	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21
28	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22
29	5	16	27	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23

THE CALENDAR.

JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.		
EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.
0	1	A	29	1	D	0	1	D	29	1	G	28	1	B	27	1	E
29	2	B	28	2	E	29	2	E	28	2	A	27	2	C	xxv. 26	2	F
28	3	C	27	3	F	28	3	F	27	3	B	26	3	D	25. 24	3	G
27	4	D	xxv. 26	4	G	27	4	G	xxv. 26	4	C	xxv. 25	4	E	23	4	A
26	5	E	25. 24	5	A	26	5	A	25. 24	5	D	24	5	F	22	5	B
xxv. 25	6	F	23	6	B	xxv. 25	6	B	23	6	E	23	6	G	21	6	C
24	7	G	22	7	C	24	7	C	22	7	F	22	7	A	20	7	D
23	8	A	21	8	D	23	8	D	21	8	G	21	8	B	19	8	E
22	9	B	20	9	E	22	9	E	20	9	A	20	9	C	18	9	F
21	10	C	19	10	F	21	10	F	19	10	B	19	10	D	17	10	G
20	11	D	18	11	G	20	11	G	18	11	C	18	11	E	16	11	A
19	12	E	17	12	A	19	12	A	17	12	D	17	12	F	15	12	B
18	13	F	16	13	B	18	13	B	16	13	E	16	13	G	14	13	C
17	14	G	15	14	C	17	14	C	15	14	F	15	14	A	13	14	D
16	15	A	14	15	D	16	15	D	14	15	G	14	15	B	12	15	E
15	16	B	13	16	E	15	16	E	13	16	A	13	16	C	11	16	F
14	17	C	12	17	F	14	17	F	12	17	B	12	17	D	10	17	G
13	18	D	11	18	G	13	18	G	11	18	C	11	18	E	9	18	A
12	19	E	10	19	A	12	19	A	10	19	D	10	19	F	8	19	B
11	20	F	9	20	B	11	20	B	9	20	E	9	20	G	7	20	C
10	21	G	8	21	C	10	21	C	8	21	F	8	21	A	6	21	D
9	22	A	7	22	D	9	22	D	7	22	G	7	22	B	5	22	E
8	23	B	6	23	E	8	23	E	6	23	A	6	23	C	4	23	F
7	24	C	5	24	F	7	24	F	5	24	B	5	24	D	3	24	G
6	25	D	4	25	G	6	25	G	4	25	C	4	25	E	2	25	A
5	26	E	3	26	A	5	26	A	3	26	D	3	26	F	1	26	B
4	27	F	2	27	B	4	27	B	2	27	E	2	27	G	0	27	C
3	28	G	1	28	C	3	28	C	1	28	F	1	28	A	29	28	D
2	29	A				2	29	D	0	29	G	0	29	B	28	29	E
1	30	B				1	30	E	29	30	A	29	30	C	27	30	F
0	31	C				0	31	F				28	31	D			

THE USE OF THE CALENDAR.

THE principal Uſes of the Calendar are theſe:

1st. You may have the Sundays, and conſequently every other Day of the Week, pointed out throughout the Year, by means of the Dominical Letters. For example: ſuppoſe C to be the Dominical Letter,

THE CALENDAR.

JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.
26	1	G	25. 24	1	C	23	1	F	22	1	A	21	1	D	20	1	F
xxv. 25	2	A	23	2	D	22	2	G	21	2	B	20	2	E	19	2	G
24	3	B	22	3	E	21	3	A	20	3	C	19	3	F	18	3	A
23	4	C	21	4	F	20	4	B	19	4	D	18	4	G	17	4	B
22	5	D	20	5	G	19	5	C	18	5	E	17	5	A	16	5	C
21	6	E	19	6	A	18	6	D	17	6	F	16	6	B	15	6	D
20	7	F	18	7	B	17	7	E	16	7	G	15	7	C	14	7	E
19	8	G	17	8	C	16	8	F	15	8	A	14	8	D	13	8	F
18	9	A	16	9	D	15	9	G	14	9	B	13	9	E	12	9	G
17	10	B	15	10	E	14	10	A	13	10	C	12	10	F	11	10	A
16	11	C	14	11	F	13	11	B	12	11	D	11	11	G	10	11	B
15	12	D	13	12	G	12	12	C	11	12	E	10	12	A	9	12	C
14	13	E	12	13	A	11	13	D	10	13	F	9	13	B	8	13	D
13	14	F	11	14	B	10	14	E	9	14	G	8	14	C	7	14	E
12	15	G	10	15	C	9	15	F	8	15	A	7	15	D	6	15	F
11	16	A	9	16	D	8	16	G	7	16	B	6	16	E	5	16	G
10	17	B	8	17	E	7	17	A	6	17	C	5	17	F	4	17	A
9	18	C	7	18	F	6	18	B	5	18	D	4	18	G	3	18	B
8	19	D	6	19	G	5	19	C	4	19	E	3	19	A	2	19	C
7	20	E	5	20	A	4	20	D	3	20	F	2	20	B	1	20	D
6	21	F	4	21	B	3	21	E	2	21	G	1	21	C	0	21	E
5	22	G	3	22	C	2	22	F	1	22	A	0	22	D	29	22	F
4	23	A	2	23	D	1	23	G	0	23	B	29	23	E	28	23	G
3	24	B	1	24	E	0	24	A	29	24	C	28	24	F	27	24	A
2	25	C	0	25	F	29	25	B	28	25	D	27	25	G	26	25	B
1	26	D	29	26	G	28	26	C	27	26	E	xxv 26	26	A	xxv. 25	26	C
0	27	E	28	27	A	27	27	D	26	27	F	25. 24	27	B	24	27	D
29	28	F	27	28	B	xxv. 26	28	E	xxv. 25	28	G	23	28	C	23	28	E
28	29	G	26	29	C	25. 24	29	F	24	29	A	22	29	D	22	29	F
27	30	A	xxv. 25	30	D	23	30	G	23	30	B	21	30	E	21	30	G
xxv.26	31	B	24	31	E				22	31	C				xix.20	31	A

Letter, and the Days againſt which C is ſet, will all be Sundays; all Mondays, thoſe againſt which D is ſet; all Tueſdays, thoſe againſt which is E &c.

2°. You may by the Epacts have the Days of the New and Full Moons throughout the Year. For example: ſuppoſe you have 23 for the Epact; then, the 8 of January, 6 of February, 8 of March &c. againſt which the Epact 23 is ſet, will be Days of the New Moon; and if you tell fourteen from the

Day of the New Moon incluſively, you will have the Days of the Full Moon; ſo you will find the 21 of January, 19 of February, 21 of March &c. to be Days of the Full Moon.

3°. You may, laſtly, by means of the Epact and of the Dominical Letter, find Eaſter-Day. Suppoſe, for example, the Epact to be 18, D the Dominical Letter: you muſt look for the Epact againſt one Day between the 8 of March and the 5 of April, both incluſive; ſo you find the Epact 18 to be againſt the 13 of March; and telling fourteen from this Day incluſively, you will find the Full Moon to be at the 26: then, the firſt Sunday after will be Eaſter-Day, and it will here be at the 29, ſince D is the Dominical Letter. Now, if you look in Table XVI for March 29 in the column of Eaſter-Day, you will find in the ſame line with it, all the Moveable Feaſts through the whole Year, determined.

Note. In the Appendix, wherein I treat of Epacts, I intend giving ſome explanation of the Calendar, as far as it relates to them. Here, I only want to make the Reader obſerve, that the New Moons are pointed out by the Calendar, two Days after the Conjunction; the Full Moons, however, are given at the Days of the Oppoſition, ſince fourteen only are told inſtead of ſixteen.

THE USE OF TABLE XIV.

YOU may, independently of the Calendar, find Eaſter-Day by this, and the following Table. In the uſe of this, ſuppoſe, for example, the Epact to be 18, and the Dominical Letter D: look firſt in Table XIII for the Epact 18, and againſt it you find March 26, which is the Day of the Paſchal Full Moon; then look in Table XIV under the Dominical Letter D for the firſt Day, there to be found, after the 26 of March, and you will find March 29 for the required Day. If you now look in Table XVI for March 29 in the column of Eaſter-Day, you will find in the ſame line with it, all the Moveable Feaſts through the whole Year, determined. Note, that when a Year has two Dominical Letters, you muſt look under that, which is made uſe of from March to the end of the Year.

THE USE OF TABLE XV.

IF you will find Eaſter-Day by this Table, from the letter which ſtands againſt the Epact for the Year, deſcend till you meet with the Dominical Letter of the ſame Year, and you will find againſt it in the third column a number, which, looked for in the firſt column of Table XVI, will give in one ſame line with it, the reſpective Days, which, Eaſter, and all the depending Moveable Feaſts, fall on in that Year.

TABLE XIII.

TABLE OF THE PASCHAL FULL MOONS.

Epacts.	Paschal Full Moons.
0	April 13
1	April 12
2	April 11
3	April 10
4	April 9
5	April 8
6	April 7
7	April 6
8	April 5
9	April 4
10	April 3
11	April 2
12	April 1
13	March 31
14	March 30
15	March 29
16	March 28
17	March 27
18	March 26
19	March 25
20	March 24
21	March 23
22	March 22
23	March 21
24	April 18
25	April 18
xxv	April 17
26	April 17
27	April 16
28	April 15
29	April 14

TABLE XIV.

A PERPETUAL TABLE TO FIND EASTER-DAY.

A		B		C		D		E		F		G	
March	26	March	27	March	28	March	22	March	23	March	24	March	25
April	2	April	3	April	4	March	29	March	30	March	31	April	1
------	9	------	10	------	11	April	5	April	6	April	7	------	8
------	16	------	17	------	18	------	12	------	13	------	14	------	15
------	23	------	24	------	25	------	19	------	20	------	21	------	22

TABLE XV.

ANOTHER TABLE TO FIND EASTER-DAY.

I	II	III
Epacts.	Dominical Letters.	
23	C	
22	D - -	1
21	E - -	2
20	F - -	3
19	G - -	4
18	A - -	5
17	B - -	6
16	C - -	7
15	D - -	8
14	E - -	9
13	F - -	10
12	G - -	11
11	A - -	12
10	B - -	13
9	C - -	14
8	D - -	15
7	E - -	16
6	F - -	17
5	G - -	18
4	A - -	19
3	B - -	20
2	C - -	21
1	D - -	22
0	E - -	23
29	F - -	24
28	G - -	25
27	A - -	26
26	B - -	27
xxv	B - -	27
25	C - -	28
24	C - -	28
	D - -	29
	E - -	30
	F - -	31
	G - -	32
	A - -	33
	B - -	34
	C - -	35

TABLE XVI.

TABLE OF THE MOVEABLE FEASTS, ACCORDING TO THE SEVERAL DAYS WHICH EASTER CAN POSSIBLY FALL UPON.

	Eaſter-Day.	Sundays after Epiphany.	Septuageſima-Sunday.	Aſh-Wedneſday.	Rogation-Sunday.	Aſcenſion-Day.	Whit-Sunday.	Trinity-Sunday.	Sundays after Trinity.	Advent-Sunday.
1	Mar. 22	1	Jan. 18	Feb. 4	Apr. 26	Apr. 30	May 10	May 17	27	Nov. 29
2	—— 23	1	—— 19	—— 5	—— 27	May 1	—— 11	—— 18	27	—— 30
3	—— 24	1	—— 20	—— 6	—— 28	—— 2	—— 12	—— 19	27	Dec. 1
4	—— 25	2	—— 21	—— 7	—— 29	—— 3	—— 13	—— 20	27	—— 2
5	—— 26	2	—— 22	—— 8	—— 30	—— 4	—— 14	—— 21	27	—— 3
6	—— 27	2	—— 23	—— 9	May 1	—— 5	—— 15	—— 22	26	Nov. 27
7	—— 28	2	—— 24	—— 10	—— 2	—— 6	—— 16	—— 23	26	—— 28
8	—— 29	2	—— 25	—— 11	—— 3	—— 7	—— 17	—— 24	26	—— 29
9	—— 30	2	—— 26	—— 12	—— 4	—— 8	—— 18	—— 25	26	—— 30
10	—— 31	2	—— 27	—— 13	—— 5	—— 9	—— 19	—— 26	26	Dec. 1
11	Apr. 1	3	—— 28	—— 14	—— 6	—— 10	—— 20	—— 27	26	—— 2
12	—— 2	3	—— 29	—— 15	—— 7	—— 11	—— 21	—— 28	26	—— 3
13	—— 3	3	—— 30	—— 16	—— 8	—— 12	—— 22	—— 29	25	Nov. 27
14	—— 4	3	—— 31	—— 17	—— 9	—— 13	—— 23	—— 30	25	—— 28
15	—— 5	3	Feb. 1	—— 18	—— 10	—— 14	—— 24	—— 31	25	—— 29
16	—— 6	3	—— 2	—— 19	—— 11	—— 15	—— 25	June 1	25	—— 30
17	—— 7	3	—— 3	—— 20	—— 12	—— 16	—— 26	—— 2	25	Dec. 1
18	—— 8	4	—— 4	—— 21	—— 13	—— 17	—— 27	—— 3	25	—— 2
19	—— 9	4	—— 5	—— 22	—— 14	—— 18	—— 28	—— 4	25	—— 3
20	—— 10	4	—— 6	—— 23	—— 15	—— 19	—— 29	—— 5	24	Nov. 27
21	—— 11	4	—— 7	—— 24	—— 16	—— 20	—— 30	—— 6	24	—— 28
22	—— 12	4	—— 8	—— 25	—— 17	—— 21	—— 31	—— 7	24	—— 29
23	—— 13	4	—— 9	—— 26	—— 18	—— 22	June 1	—— 8	24	—— 30
24	—— 14	4	—— 10	—— 27	—— 19	—— 23	—— 2	—— 9	24	Dec. 1
25	—— 15	5	—— 11	—— 28	—— 20	—— 24	—— 3	—— 10	24	—— 2
26	—— 16	5	—— 12	Mar. 1	—— 21	—— 25	—— 4	—— 11	24	—— 3
27	—— 17	5	—— 13	—— 2	—— 22	—— 26	—— 5	—— 12	23	Nov. 27
28	—— 18	5	—— 14	—— 3	—— 23	—— 27	—— 6	—— 13	23	—— 28
29	—— 19	5	—— 15	—— 4	—— 24	—— 28	—— 7	—— 14	23	—— 29
30	—— 20	5	—— 16	—— 5	—— 25	—— 29	—— 8	—— 15	23	—— 30
31	—— 21	5	—— 17	—— 6	—— 26	—— 30	—— 9	—— 16	23	Dec. 1
32	—— 22	6	—— 18	—— 7	—— 27	—— 31	—— 10	—— 17	23	—— 2
33	—— 23	6	—— 19	—— 8	—— 28	June 1	—— 11	—— 18	23	—— 3
34	—— 24	6	—— 20	—— 9	—— 29	—— 2	—— 12	—— 19	22	Nov. 27
35	—— 25	6	—— 21	—— 10	—— 30	—— 3	—— 13	—— 20	22	—— 28

NOTE, that in the Biſſextiles, the number of Sundays after Epiphany will be the ſame, as if Eaſter-Day had fallen one Day later than it really falleth. You muſt for the ſame reaſon add one Day in every Biſſextile to the Day of the Month given by the Table for Septuageſima-Sunday: and the like you muſt do for Aſh-Wedneſday, whenever the Day given for it by the Table, is in the Month of February.

In Order to exhibit at one View all that can be reſolved by the foregoing TABLES, here follows

A
GENERAL EXAMPLE.

ANNO DOMINI 172293, being the Firſt after BISSEXTILE.

CHRONOLOGICAL NOTES.	MOVEABLE FEASTS.
DOMINICAL LETTER, F.	SEPTUAGESIMA-SUNDAY, February 17.
CYCLE OF THE SUN, 18.	ASH-WEDNESDAY, March 6.
GOLDEN NUMBER, 2.	EASTER-DAY, April 21.
EPACT, 28.	ROGATION-SUNDAY, May 26.
ROMAN INDICTION, 6.	ASCENSION-DAY, May 30.
	WHIT-SUNDAY, June 9.
	TRINITY-SUNDAY, June 16.
	ADVENT-SUNDAY, December 1.

DAYS OF THE WEEK; and NEW AND FULL MOONS.

January	enters on a Tueſday.	New Moon, the 3d.	Full Moon, the 16th.
February	——— a Friday.	New Moon, the 2d.	Full Moon, the 15th.
March	——— a Friday.	New Moon, the 2d.	Full Moon, the 16th.
April	——— a Monday.	New Moon, the 3d.	Full Moon, the 15th.
May	——— a Wedneſday.	New Moon, the 1ſt & 31ſt.	Full Moon, the 14th.
June	——— a Saturday.	Full Moon, the 13th.	New Moon, the 29th.
July	——— a Monday.	Full Moon, the 12th.	New Moon, the 29th.
Auguſt	——— a Thurſday.	Full Moon, the 11th.	New Moon, the 27th.
September	——— a Sunday.	Full Moon, the 9th.	New Moon, the 26th.
October	——— a Tueſday.	Full Moon, the 9th.	New Moon, the 25th.
November	——— a Friday.	Full Moon, the 7th.	New Moon, the 24th.
December	——— a Sunday.	Full Moon, the 7th.	New Moon, the 23d.

If we now fancy the ſame number of Years to be before Chriſt, it will run as follows in the next Page.

ANNO 172293 before Christ, being BISSEXTILE.

CHRONOLOGICAL NOTES.

Dominical Letters, G, F.
Cycle of the Sun, 1.
Golden Number, 1.
Epact, 25.
Roman Indiction, 1.

DAYS OF THE WEEK; AND NEW AND FULL MOONS.

January	enters on a Monday.	New Moon, the 6th.	Full Moon, the 19th.
February	——— a Thurſday.	New Moon, the 5th.	Full Moon, the 18th.
March	——— a Friday.	New Moon, the 6th.	Full Moon, the 19th.
April	——— a Monday.	New Moon, the 5th.	Full Moon, the 18th.
May	——— a Wedneſday.	New Moon, the 4th.	Full Moon, the 17th.
June	——— a Saturday.	New Moon, the 3d.	Full Moon, the 16th.
July	——— a Monday.	New Moon, the 2d.	Full Moon, the 15th.
Auguſt	——— a Thurſday.	New Moon, the 1ſt & 30th.	Full Moon, the 14th.
September	——— a Sunday.	Full Moon, the 12th.	New Moon, the 29th.
October	——— a Tueſday.	Full Moon, the 12th.	New Moon, the 28th.
November	——— a Friday.	Full Moon, the 10th.	New Moon, the 27th.
December	——— a Sunday.	Full Moon, the 10th.	New Moon, the 26th.

Of

OF THE NEW, OR GREAT CYCLE OF THE MOON.

THIS new Cycle of the Moon originates from the revolution of the Epacts in 37500 Years, as to be ſeen in Table X. If you add 1000 to any given number of Years, the ſum, if it does not exceed 37500, will be the Year of this new Cycle; otherwiſe it muſt be divided by 37500, and the remainder will then be the Year of the Cycle: ſo, were, for example, the Year of our Lord 30001, by adding 1000 to it, you would have 31001 for the Year of the New Cycle of the Moon, as it does not exceed 37500; but if the given Year were 37000, for example, then, adding 1000 to it, you would have 38000, which muſt be divided by 37500, and the remainder 500 will be the Year of the Cycle.

If the given number of Years were before Chriſt, you add 36500 to it, and ſubſtract the ſum from 37501, and the remainder will be the Year of the New Cycle of the Moon. For example; the Year 100 before Chriſt, is the 901ſt of the Cycle; the Year 1526, the 36975th: in this laſt example the ſum 38026 has been divided by 37500, becauſe it exceeded this number, and then the remainder 526 has been ſubſtracted from 37501.

OF THE VICTORIAN OR DIONYSIAN PERIOD.

THE Victorian Period is of 532 Years, (the number 532 is the product of the Cycle of the Sun 28, and the Cycle of the Moon 19) and it always begins when the Cycle of the Sun, and the Cycle of the Moon, are both 1. This happened the Year 457 before Chriſt, the Years of our Lord 76, 608, 1140, 1672; and will happen again in the Year 2204. If you add 457 to the Year of our Lord, and divide the ſum by 532, the remainder, or the diviſor if nothing remaineth, will give you the Year of this Period. Were then, the Year of our Lord 2204 propoſed for example, you would find it to be the 1ſt of the Victorian Period; and if the Year of our Lord were 2203, it would then be the 532d.

For Years before Chriſt, you muſt add 75 to the given Year, and ſubſtract the ſum from 533, and the remainder will be the Year of the Victorian Period. The Year 15 before Chriſt, for example, is the 443d of the Period; the Year 629, the 361ſt: in this laſt example the ſum 704 has been divided by 532, becauſe it exceeded this number, and then the remainder 172 has been ſubſtracted from 533.

You may obſerve, that by the Year of the Victorian Period, you may have the Cycle of the Sun, and the Cycle of the Moon: if you divide the Year of the Period by 28, the remainder will give you the Cycle of the Sun; if the Year be divided by 19, the remainder gives the Cycle of the Moon.

OF THE JULIAN PERIOD.

THE Julian Period is of 7980 Years, (the number 7980 is the product of the three Cycles 28, 19, and 15) and it begins when the Cycle of the Sun, the Cycle of the Moon, and the Cycle of the Roman Indiction, are each 1; which happened the Year 4713 before Chriſt, and will happen again in the Year of our Lord 3268. To have the Year of this Period, you muſt add 4713 to the Year of our Lord, and the ſum will give you the required Year, which, however, muſt be divided by 7980, when above it: the Year of our Lord 3267, for example, will be the 7980th Year of the Julian Period; and the Year 3268, the 1ſt.

For Years before Chriſt, you muſt add 3267 to the given Year, and ſubſtract the ſum from 7981, and the remainder will be the Year of the Julian Period. The Year 23 before Chriſt, for example, is the 4691ſt of the Period; the Year 5429, the 7265th: in this laſt example the ſum 8696 has been divided by 7980, becauſe it exceeded this number, and then the remainder 716 has been ſubſtracted from 7981.

You may here alſo obſerve, that, if you divide the Year of the Julian Period by 28, 19, or 15, the reſpective remainders will give you the Cycle of the Sun, the Cycle of the Moon, or the Cycle of the Roman Indiction.

OF THE CONVERSION OF THE OLD INTO THE NEW STYLE.

$h-\frac{h}{4}-2=x$. YOU may by this Formula have at any time of the Old Style the correſponding Day of the New One. For example, ſuppoſe you require to know what Day of the New Style is correſponding to the 10th of January of the Year of our Lord 4215, Old Style: ſubſtitute the 42 hundreds to h, and the Formula will become $42-\frac{42}{4}-2=x$, which reduced (fractions omitted) will be $x=30$; viz. 30 Days, which you muſt add to the 10th of January, and thus you will find, that the correſponding Day of the New Style is the 9th of February.

$\frac{d+2}{3}\times4+r=x$. WHEN you have the number of Days to be added, you may by this ſecond Formula find the number of hundreds of the Years in which they muſt be added: ſuppoſe, for example, you will know in what Century the addition of 30 Days is to be made: you ſubſtitute 30 to d, and the remainder of the diviſion to r; then the Formula will become $10\times4+2=x$, viz. $x=42$ hundreds: ſo you find, that the addition of 30 Days is to be made from the Year of our Lord 4200 to the Year 4299, both incluſive.

You may by the latter Formula ſolve the following Queſtion.

When will the 1ſt *of July, New Style, correſpond to the* 1ſt *of January, Old Style?*

It is evident, that it will be when 181 Days are to be added to the 1ſt of January: ſo, by ſubſtituting 181 to d, and the remainder of the diviſion to r, you will find $x=244$: therefore, all the Common Years, the hundreds of which are 244, will anſwer the Queſtion.

For Years before Chriſt, you will make uſe of this Formula... $h+2-\frac{h+3}{4}$, inſtead of the firſt; obſerving, primarily, that when the number of units of the given Year is above 1, you muſt add 1 to the number of hundreds; and ſecondarily, that the Days are here to be ſubſtracted, and not added as in Years after Chriſt.

And of the Formula $\frac{d-2}{3}\times4+r$, inſtead of the ſecond; obſerving, that when you have got the number of hundreds, 42, for example, you muſt ſay, from the Year 4202 to the Year 4301, and not, from the Year 4200 to the Year 4299 as in Years after Chriſt.

A GENERAL NOTE.

THIS Note relates to Years before Chriſt, when they are given from the Creation of the World; in which caſe, you muſt, if you will make uſe of the foregoing Tables, ſubſtract the given Year from the number of Years computed from the Creation to the Chriſtian Æra, and the remainder more 1 will be the number you muſt look for in the Tables: ſuppoſe, for example, the given Year to be the 10th from the Creation, and the Creation to be 4000 Years before Chriſt, you muſt then ſubſtract 10 from 4000, and adding 1 to the remainder 3990, you will have 3991 for the number to be looked for in the Tables: viceverſa, you may know the ſame Year 3991 before Chriſt, for example, to be the Year 10 from the Creation, by ſubſtracting 3991 from 4000, and adding 1 to the remainder 9.

APPENDIX.

OF THE DOCTRINE OF EPACTS.

THE word *Epact* derives from the Greek word επαχτη ſignifying *a ſupplement.* Appoſite is the appellation, ſince *Epacts* are a kind of ſupplement to Lunar Years to adjuſt them or make them equal to Solar Ones. Some, however, derive the word *Epact* from επαγω, *induco.*

Epacts are numbers by means of which the Age of the Moon may at any time be determined: they are of two ſorts; *Annual* or *Menſtrual*; and be thus defined:

Menſtrual *Epacts* are the exceſſes of the Solar Month above the Lunar Synodical Month; or of ſeveral Solar Months above as many Lunar Synodical Months.

Annual *Epacts* are the exceſſes of the Solar Year above the Lunar Year of twelve Synodical Months; or of ſeveral Solar Years above as many Lunar Years of twelve Synodical Months.

As Years as well as Months are divided into Aſtronomical and Civil, you will obſerve, that here the latter are to be underſtood.

Now, to exemplify Menſtrual *Epacts*, let us ſuppoſe the Lunar Year to begin with the Solar: then, as the Lunar Month of January is Full, that is, of 30 Days, and the Solar Month of January, is of 31 Days, the exceſs of the Solar Month above the Lunar, or the *Epact* of the Month of January, is 1 Day, and this will evidently be the *Epact* for the Month of February. Likewiſe, as the Lunar Month of February is Cave or Hollow, that is, of 29 Days, and the Solar Month of February, is of 28 Days, the exceſs of the Solar Month above the Lunar is —1, which added to the *Epact* 1 of the Month of January, will give 0 for the *Epact* of the Month of February, or the *Epact* for the Month of March. By following the ſame reaſoning, in a regular proceſs, it will be found, that the *Epacts* belonging to the reſpective Months, will be as repreſented over ſaid Months in the following line:

0	1	0	1	2	3	4	5	7	7	9	9
January,	February,	March,	April,	May,	June,	July,	Auguſt,	September,	October,	November,	December.
F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.

Theſe may be termed *Fixed Epacts*; they never ſuffer any increaſe or decreaſe; and the ſame *Epacts* conſtantly belong to the ſame reſpective Months. The Menſtrual *Epacts* are of no uſe by themſelves, except in the caſe above, wherein the Lunar Year is ſuppoſed to begin with the Solar: in all other caſes, they are uſed jointly with the Annual *Epact*, as it will be ſeen hereafter. The letters F or C under the reſpective Months, are to ſhow, which are the Full Months, and which the Cave.

To exemplify, next, Annual *Epacts*, let us likewiſe ſuppoſe the Lunar Year to begin with the Solar: then, as the Common Lunar Year is of 354 Days, and the Common Solar Year, of 365, the exceſs of the Solar Year above the Lunar, or the Annual *Epact*, is 11 Days: the exceſs, therefore, or the Annual *Epact* of 2 Years, will be compoſed of twice 11 Days, and be 22 Days; ſo the *Epact* of 3 Years will be 33 Days, or rather 3, after the rejection, according to rule, of the Emboliſmic Month; then the *Epact* of 4 Years will be 14 Days; of 5 Years, 25 Days; of 6 Years, 36 Days, that is, 6 Days, and ſo on.

You will obſerve, that the exceſs of the Solar Year above the Lunar is deemed of 11 Days even in Biſſextiles. There are 235 Lunations in a Cycle of 19 Years, viz. 228 at the rate of 12 Lunations a Year, and 7 other becauſe of the 11 Days by which every Solar Year is deemed to exceed the Lunar: theſe latter are the ſeven Emboliſmic or Intercalary Months, compoſed of 30 Days each, the laſt excepted, which is of 29 Days only: in fact, if we multiply the 11 Days by 19, we will have 209 Days, and theſe divided by 30, give 6 in the quotient with a remainder 29. By this it appears, that if we conſidered the exceſs of the Solar Year above the Lunar of 12 Days in Biſſextiles, we never would be able to make up the account.

It is neceſſary you further obſerve, that, for better convenience in practice, it is made a rule always to reject 30, though the laſt of the ſeven Emboliſmic Months, which occur in the Lunar Cycle of 19 Years, be of 29 Days only; but then, by way of compenſation, 12, inſtead of 11, is to be added to the *Epact* of the laſt Year of the Cycle to form the ſucceeding *Epact* of the firſt.

Now, if we ſuppoſe the *Epact* for the 1ſt Year of the Cycle of the Moon to be 11 Days, you will ſee what *Epact* belongs to each Year of the Cycle, by the following Table:

Gold. Numb.	Epacts.	Gold. Numb.	Epacts.	Gold. Numb.	Epacts.	Gold. Numb.	Epacts.
1	11	6	6	11	1	16	26
2	22	7	17	12	12	17	7
3	3	8	28	13	23	18	18
4	14	9	9	14	4	19	29
5	25	10	20	15	15		

And as the New Moons return on the ſame Days every 19th Year, ſo, will the *Cycle of Epacts*, as it is called, expire with the Cycle of the Moon, and then begin again with the ſame. Yet, the ſame Cycle of *Epacts* will not always hold, for, though the New Moons return on the ſame Day every 19th Year, they do not return at the ſame Hour, but ſooner by 1 Hour and 28 Minutes thereabout; and this is deemed to cauſe the anticipation of 1 Day in 312½ Years, and conſequently of 2 Days in 625; of 4 Days in 1250, and of 8 Days in 2500 Years.

Aſtronomers call the New Moon's anticipation of 1 Day, *Proemptoſis* or *Lunar Equation*, and they more conveniently ſuppoſe it to take place at even hundreds, namely, at every 300th Year of the period of 2500 Years; computing the Periods, as if one of them had begun one thouſand Years before Chriſt.

It will, therefore, become neceſſary to increaſe by an unit the *Epact* for thoſe hundredths Years when a Lunar Equation takes place, in order that it may give the New Moons 1 Day earlier than uſual; and thus, new ſets or Cycles of *Epacts* will be formed, as the ſubſequent *Epacts*, conſtantly increaſing by 11, will alſo be greater by unit than the correſponding *Epacts* of the preceding 19 Years. The Table XII, here before, exhibits all the different Cycles of *Epacts*: the number of theſe Cycles is thirty, which naturally ariſes from the number of *Epacts* being juſt thirty.

Epacts then, we ſay, are thirty in number; they are all repreſented in the following line:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 or 0.

And, as we hinted before, they are numbers by means of which the Age of the Moon may at any time be determined; for, as the *Epact* for a Year expreſſes the number of Days by which the Moon precedes the beginning of the Year, and the *Epact* for a Month expreſſes the number of Days by which the Moon precedes the beginning of the Month, ſo, if you add the Annual and Menſtrual *Epacts* to the given Day of the Month, the ſum muſt give the Age of the Moon at that Day: if you require to know, for example, what is the Age of the Moon at the 7th of May in a Year, the *Epact* for which is 14; you will find the Age of the Moon to be 23 Days; for 14+2+7=23: 2 is the *Epact* for the Month of May as may be ſeen here before.

You will obſerve, 1°. that you muſt reject, according to the general rule, the Emboliſmic Month, which the ſum of the Annual and Menſtrual *Epacts* may occaſionally form; and 2°. that when the ſum of the two *Epacts* together with the given Day of the Month exceeds 30 in Full Months, or 29 in Cave, you ſubſtract accordingly 30 or 29 from the ſum, and the remainder is the Age of the Moon.

You will further obſerve, that the Moon is two Days older than what the Age of the Moon here expreſſes; the reaſon of this, is, that we make uſe of *Epacts* two units lower than what they ought to be to give the true or Aſtronomical Age of the Moon.

By the Age of the Moon you will always know on what Days the New and Full Moons happen, ſince, when the Moon is New, then the 1ſt Day of the Age is told, and when Full, the 14th.

There is, however, a particular Rule to find directly on what Day of any Month in any Year the New Moon falls on, which is as follows: add the Annual and Menſtrual *Epacts* together, and ſubſtract the ſum, rejecting 30 from it, out of 30 in Full Months, or out of 29 in Cave; then the remainder more 1 will be the Day of the New Moon: did you require to know, for example, what Day of September the New Moon will fall on in a Year, the *Epact* for which is 9; having added 9 to 7 (the *Epact* for September), you ſubſtract the ſum 16 out of 30 (it being a Full Lunation), and the remainder 14 more 1, or the ſum 15 gives you the Day of the New Moon in September.

The reaſon of the Rule will appear very plain, if it is conſidered, that the remainder of the ſubſtraction is the ſecond part of a Lunar Month, the firſt part of which is the known ſum of the two *Epacts*: the remainder, therefore, more 1, will give the firſt Day of the ſubſequent Lunar Month, or, in other words, the Day of the New Moon.

It is to be obſerved, that the New Moon given by the *Epact* is not the Aſtronomical, but is the Civil. The Chriſtian Church, after the manner of the Jews, begin their Lunar Month from the time when the Moon firſt appears to riſe Heliacally in the evening, that is, to emerge out of the Sun's rays, which is about two Days after her Conjunction with the Sun: thus, the Civil New Moon will be found to happen two Days later than the Aſtronomical.

When you have got the Day of the New Moon, if you add 13 to it, the ſum will give you the Day of the Full Moon; but you may have more directly the Day of the Full Moon by the *Epact* of the Full Moon, in the ſame manner as by the *Epact* of the New Moon you have the Day of the New Moon. And thus is to be had the *Epact* of the Full Moon: ſubſtract 13 from the *Epact* of the New Moon, and the remainder is the *Epact* of the Full Moon: in caſe you can not ſubſtract 13 from the *Epact* of the New Moon, you muſt add 30 to it, and then you ſubſtract 13 from the ſum; the remainder will likewiſe be the *Epact* of the Full Moon.

As the Full Moon generally happens the 16th Day from the Aſtronomical New Moon, it will be eaſily underſtood why it happens the 14th from the Civil One.

By the help of the *Epact* you may likewiſe find Eaſter-Day, and conſequently all the depending Moveable Feaſts, in the following manner: you muſt firſt find out the Day of the New Moon of March, if the Annual *Epact* does not exceed 23; otherwiſe, you muſt find out the Day of the New Moon of April: then you add 13 to the found Day of the New Moon, and the ſum will give you the Day of the Paſchal Full Moon: now, the firſt Sunday after the Paſchal Full Moon, will be Eaſter-Day *(b)*.

And by Eaſter-Day, you will be able to determine all the Moveable Feaſts throughout the Year. For example. The firſt Sunday of Lent is ſix Weeks before Eaſter-Day; and the Wedneſday, that precedes

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(b) It will, therefore, be requiſite to know what Day of the Week is the Day of the Paſchal Full Moon, and by this means it will be found what Day of the Month is the firſt Sunday after. I have given Tables for this purpoſe: however, I will here propoſe a method to find by calculation the Day of the Week for the firſt Day of March, and conſequently for any other Day in the Year. Add to any number of Years its fourth part, omitting fractions, and add the number 2 beſides; divide the whole ſum by 7, and the remainder will give you the Day of the Week for the firſt Day of March; and in caſe there is no remainder, then the diviſor points out the 7th Day, that is, the Saturday. Suppoſe, for example, you require to know what Day of the Week is the 1ſt of March of the Year of our Lord 5601: you will then have $5601 + 1400 + 2 = 7003$; and 7003 divided by 7 leaves 3 for a remainder; then, the 1ſt of March of the Year of our Lord 5601 is the 3d Day of the Week, or a Tueſday: thus, the 8th, 15th, 22d and 29th of March will all be Tueſdays, the 30th will be a Wedneſday, and the 31ſt a Thurſday; the 1ſt of April, therefore, is a Friday, as well as the 8th, the 15th, the 22d and the 29th, &c. &c.

Let us now determine Eaſter-Day in the ſame Year 5601: as the *Epact* for this Year is 9, the Paſchal New Moon will be at the 22d of March, and conſequently the Paſchal Full Moon at the 4th of April; but the 1ſt of April, we have ſeen, is a Friday, the 4th, then, is a Monday, and the firſt Sunday after will be the 10th of April: thus we find, in the Year of our Lord 5601, Eaſter-Day to be at the 10th of April.

the firſt Sunday of Lent, is the firſt Day of Lent, otherwiſe called Aſh-Wedneſday: the firſt preceding Sunday is Quinquageſima-Sunday; the ſecond, is Sexageſima-Sunday, and the third, is Septuageſima-Sunday: it will now be eaſy to ſee how many Sundays there are after Epiphany to Septuageſima-Sunday. Next, the Moveable Feaſts following Eaſter: Rogation-Sunday is five Weeks after Eaſter-Day, and the firſt Thurſday following Rogation-Sunday, is Aſcenſion-Day: Whit-Sunday is ſeven Weeks after Eaſter-Day, and the Sunday after Whit-Sunday, is Trinity-Sunday: now you will eaſily tell how many Sundays there are after Trinity to the firſt Advent-Sunday, which is the fourth Sunday before Chriſtmas.

Rule for finding the Epact *for any Year in any Century after Chriſt.*

Multiply the Centuries of any Year by 8; to this product add the number 638, and divide the ſum by 25: multiply the Golden Number of the Year by 11, and add to the product the above quotient, fractions omitted; divide this ſum by 30, and the remainder will be the *Epact*.

Example for the Year 3948.

1°. $39 \times 8 = 312$.
2°. $312 + 638 = 950$, &
$950 : 25 = 38$.
3°. 16 (G. N.) $\times 11 = 176$, &
$176 + 38 = 214$.
4°. $214 : 30$
leaves a remainder 4 for the *Epact* required.

We may account for the operation in the following manner;

If the New Moons returned exactly at the ſame time after the expiration of 19 Years, the product of the Golden Number, or Year of the Lunar Cycle, multiplied by 11, would give the *Epact*: but we have already ſhown, that they anticipate 8 Days, or $\frac{200}{25}$ of a Day, in 25 Centuries; therefore in a Century they will anticipate $\frac{8}{25}$ of a Day, and in this proportion muſt the *Epacts* be increaſed. Now, in our Example, the product of the Golden Number multiplied by 11, is, after the rejection of the thirties, 8 Days ſhort of the true *Epact*; but the product of the number of Centuries multiplied (as the rule directs) by $\frac{8}{25}$ amounts to $\frac{312}{25}$, or 12 Days + $\frac{12}{25}$; therefore, $\frac{638}{25}$ i. e. 25 Days + $\frac{13}{25}$ muſt be added to make it amount to 38 Days, as evidently the means of juſt completing the 8 Days.

Rule for finding the Epact *for any Year in any Century before Chriſt.*

Multiply the Centuries of any Year by 8; to this product add the number 644, and divide the ſum by 25: ſubſtract the Golden Number of the Year from 20, and multiply the remainder by 19; from this product ſubſtract the above quotient, omitting fractions, and the remainder, rejecting the thirties from it, will be the *Epact*.

Example for the Year 3202.

1°. 32×8=256.
2°. 256+644=900, &
900 : 25=36.
3°. 20—11(G. N.)=9, &
9×19=171.
4°. 171—36=135, &
135 : 30
leaves a remainder 15 for the *Epact* required.

This operation is moſtly accounted for in a ſimilar manner, as the precedent. The difference here is, that the *Epacts* are to be decreaſed; which, it is evident, muſt be the caſe, ſince they are increaſing in the order direct: it is likewiſe evident, that the Golden Numbers muſt be reverſed, ſo as the Golden Numbers 19, 18, &c. to become 1, 2, &c.; and then theſe are to be multiplied by 19, ſince the *Epacts*, taken in a retrograde order, increaſe by 19.

You will obſerve, that in caſe the quotient is larger than the number it is to be ſubſtracted from, you muſt divide it by 30, and ſubſtract the remainder; and were the remainder yet too large, you add 30 to the ſmaller number, and certainly then the ſubſtraction will be found practicable.

You will likewiſe obſerve, that when the Centuries are even, or have only one unit above them, 1 muſt be ſubſtracted from their number, before the multiplication by 8 takes place: for example, if the given number of Years were 3200 or 3201, you would then multiply by 8, 31 inſtead of 32: but this does not at all affect the Golden Number, as it muſt be that of the given Year.

Rule to determine for any Century after Chriſt, if the Cycle of Epacts *is to be changed, or to continue the ſame.*

Add 10 to the Centuries of any Year, and divide the ſum by 25; and if the remainder can be divided exactly by 3, then a new Cycle or ſet of *Epacts* will be introduced, each *Epact* exceeding the precedent correſponding One by unit; otherwiſe it will remain the ſame.

Ex. gr. Suppoſe you want to know if the preſent ſet of *Epacts* will yet be made uſe of in the next Century, you add 10 to 18, and dividing the ſum 28 by 25, you will have a remainder 3, which, by being diviſible exactly by 3, reſolves the queſtion in the negative: a new ſet of *Epacts* will therefore be introduced next Century.

The reaſon of this proceeding is, that at every 3d Century within the period of 25 Centuries, there is a Lunar Equation, and therefore the *Epacts* muſt each of them be increaſed by unit to give by this means the New Moons 1 Day ſooner. Beſides, the addition of the number 10 to the Centuries, is made, becauſe the period of 25 Centuries, begins 1000 Years before Chriſt.

I now proceed to ſpeak of the diſpoſition of the 30 *Epacts* in the Calendar. *See* Pages 20 & 21. Truly this diſpoſition of the *Epacts* is very ſimple; they be juſt placed againſt thoſe Days on which they give the New Moons; we find, for example, the *Epact* 30 (or inſtead of it the *Epact* 0) againſt the 1ſt of January, becauſe the *Epact* 30 gives the New Moon for January on that very Day; for a ſimilar reaſon, the *Epact* 29 is ſet againſt the 2d of January; the *Epact* 28, againſt the 3d; and ſo on till the *Epact* 1, which is againſt the 30th; then comes again the *Epact* 30, and ſtands againſt the 31ſt; the *Epact* 29 is againſt the 1ſt of February; the *Epact* 28, againſt the 2d; &c. By the which we ſee, that the *Epacts* will ſucceſſively follow each other in a retrograde order; and they being 30 in number, they will correſpond to 30 Days, and thus denote the 30 Days of the Lunar Months which are Full: but, as there are ſix Lunar Months in the Year, which are Cave, that is, of 29 Days, it was neceſſary to ſet together the two *Epacts* 25 and 24 againſt one ſame Day in thoſe Months, that thus the whole Cycle of the 30 *Epacts*, correſponding to 29 Days only, might denote the 29 Days of the Lunar Months which are Cave.

It is evident, that the effect produced by the ſetting the two *Epacts* together againſt one ſame Day, ought to take place as early as poſſible in the Month, and for this reaſon were choſen the two *Epacts* 25 and 24, as none elſe could have anſwered better the purpoſe: theſe two *Epacts* 25 and 24 thus ſet together will of courſe fall againſt the 5 of February, the 5 of April, the 3 of June, the 1 of Auguſt, the 29 of September, and the 27 of November; by which it appears, that the moſt diſtant terms from the 1ſt of the Month, are the 5 of February and the 27 of November, each equally diſtant, the 5 of February four Days after, and the 27 of November four Days before, the 1ſt of the Month.

As two New Moons can not happen at the ſame Day in a Lunar Cycle of 19 Years, it would be improper to have them pointed out at the ſame Day in the Calendar by the *Epacts* 25 and 24; and for this reaſon it is, that in thoſe Months in which theſe two *Epacts* are ſet together againſt one ſame Day, the *Epact* xxv has been placed by the *Epact* 26, in order that it may be employed inſtead of the *Epact* 25, whenever the two *Epacts* twenty-five and 24 occur in one ſame Lunar Cycle: the ſets of *Epacts* which contain the two *Epacts* twenty-five and 24, are thoſe which, in the general Table of *Epacts*, Page 19, have for indices the figures 1, 4, 7, 12, 15, 18, 23, 26: in theſe ſets, therefore, xxv has been placed inſtead of 25; and it is obſervable, that xxv is only to be met with in thoſe columns wherein the Golden Number exceeds 11; from which it may be deduced, that when a Year has twenty-five for *Epact*; if it has a Golden Number exceeding 11, one muſt take the *Epact* xxv to point out the New Moons in the Calendar; and if it has a Golden Number which does not exceed 11, one muſt take the *Epact* 25.

In the Calendar, againſt the 31ſt of December, you find, beſides the *Epact* 20, the *Epact* xix; this *Epact* is only made uſe of when the *Epact* 19 concurs with the Golden Number 19: as ſuch a Year is the laſt of the ſeven Emboliſmic, the Emboliſmic Month it contains is of 29 Days only, and therefore the laſt Lunation which begins at the 2d of December, as the *Epact* 19 ſhows, ought to end at the 30th; in conſequence of which a New Moon is indicated at the 31ſt by the *Epact* XIX. This particular attention has been the more neceſſary, as without it there would have been no New Moon indicated in the Calendar from the 2d of December to the 30th of the following January where there is the *Epact* 1, which is the *Epact* that ſucceeds the *Epact* 19 when this laſt concurs with the Golden Number 19.

There is only one ſet or ſeries of *Epacts* in which the *Epact* 19 correſponds to the Golden Number 19: this ſeries is indicated by 25 in the general Table of *Epacts*, Page 19; and you may obſerve, that there is not the *Epact* 20 in it; the inconvenience, therefore, of having two New Moons pointed out at the ſame Day in the ſame Lunar Cycle by the *Epacts* XIX and 20, is not to be apprehended.

The laſt time when the *Epact* 19 has concurred with the Golden Number 19, has been in the Year 1503 before Chriſt: it will not happen again before the Year of our Lord 7713.

Here ends the Treatiſe on *Epacts* I purpoſed.

I WILL now take the opportunity of making a few general obſervations.

1°. We are directed to make the change of the Dominical Letter in Biſſextiles at the Day of the Feaſt of St. Matthias; this Feaſt happens on the 24 of February in Common Years, but is made to fall on the following Day in Biſſextiles, for the reaſon, that the Intercalary Day is meant to be inſerted immediately after the 24 of February: now, this Intercalary Day is denominated the 24 of February as the Day preceding, and anſwers to the Day vulgarly denominated the 25 of February; of courſe, the Days following the Intercalary Day, are denominated the 25, 26, 27, and 28 of February, and reſpectively anſwer to thoſe vulgarly denominated the 26, 27, 28, and 29.

2°. It is almoſt a general practice, to alter the Menſtrual Epacts; as alſo to omit to make the addition of 1 at the cloſe of the operation for finding the Day of the New Moon, as preſcribed in the Rule. We make uſe of ſuch Epacts as give the Civil New Moon; and if we would have the Aſtronomical One, we ought to add 2 to the Annual Epact, ſince it is too low by two units to effect that purpoſe: but the Menſtrual Epacts ought never to be altered; nor ought any part of the operation to be omitted. Elſe, I can not ſee there is any impropriety, taking it in a Civil way, in beginning the Lunar Month from the Moon's firſt appearance in the evening after her Conjunction with the Sun; and beſide, by the Day of the Civil New Moon, may always be had that of the Aſtronomical, ſince it is known, that the Aſtronomical New Moon happens two Days before the Civil.

I muſt farther obſerve, that if the laſt part of the operation for finding the Day of the New Moon, is omitted, as ſaid above, this operation will never agree with that for finding the Age of the Moon; the reaſon is obvious.

3°. It is not always well underſtood why the Epact 0 be employed inſtead of the Epact 30. To remove any difficulty on the ſubject, it muſt be conſidered, that the Epact 30 expreſſes an Emboliſmic Month, and conſequently it is rejected as are all Emboliſmic Months throughout the Lunar Cycle, ſince it would be unneceſſary and even inconvenient to keep them in account in the common uſe of Epacts: then if you reject 30 from 30, the reſult is 0; and thus it is, that 0 is looked at as the Epact to be employed inſtead of the Epact 30: elſe, properly ſpeaking, the real Epact is 30, and not 0; no doubt, the Epacts being expreſſive of the various Age of the Moon ought all to be ſignificative numbers.

There are who employ an Aſteriſk (*), and make it ſignify both 30 and 0; theſe, I find, expreſs the Epacts in Roman Characters, as follows:

I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, XIX, (19), XX, XXI, XXII, XXIII, XXIV, XXV, (25), XXVI, XXVII, XXVIII, XXIX, *.

4°. The Epact made uſe of in a Year is the Epact of the Year preceding, but notwithſtanding it is alſo very often ſaid to be the Epact *of* that Year in which it is made uſe of; I have thought proper to avoid this expreſſion, and therefore always ſaid throughout my Work "the Epact *for* ſuch a Year" when meaning the Epact which is made uſe of in that Year: the ſame diſtinction I made in reſpect to Menſtrual Epacts.

5°. Various are the definitions which are given of Epacts, but there is and can be but one that conveys a true notion of their nature, and ſuch definition ought to be given in preference to all others.

6°. Much has been written in vindication of the Gregorian Calendar; if prejudices, however, were laid aſide, there would be no queſtion about it; and the Julian Calendar would be generally acknowledged as the beſt that can be deviſed in our Planetary Syſtem, ſince Julian Years are ſo well adapted at one ſame time to the motions both of the Sun and of the Moon: 4 Julian Years, for example, are, as near as poſſible, equal to 4 Solar Years; ſo are 19 Julian Years, to 19 Lunar Years. This incontrovertibly proves the excellence of the Julian Calendar above any other poſſible Calendar. And thus it is, we find all ſimpleneſs and uniformity in the Julian Calendar; but not ſo in the Gregorian One; here we neceſſarily find intricacy.

Moreover, there are two very improper Cycles in the Gregorian Calendar, I mean, the Cycle of the Sun of 28 Years, and the Cycle of the Moon of 19 Years; both theſe Cycles ought to be of Julian, not Gregorian Years. This difference is made to appear very ſenſibly in the following example: the Julian Year of our Lord 48901 exactly correſponds to the Gregorian Year of our Lord 48902: now, the former is the 22d Year of the Cycle of the Sun, and the 15th of the Cycle of the Moon; while the latter is the 23d Year of the Cycle of the Sun, and the 16th of the Cycle of the Moon.

Much more could be ſaid on the ſubject, if neceſſary; this little, however, may, meſeems, well ſuffice.

FINIS.

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OF THE

APPENDIX.

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THE

REGISTER of TIME.

THE

REGISTER of TIME:

OR, A

PERPETUAL CALENDAR.

PART II.

Containing the

GREGORIAN CALENDAR.

Together with a

PARTICULAR TREATISE on EPACTS.

By le Chevalier *FRANÇOIS* SALUCES DE LA MANTE,
Of the Order of Malta.

Multa dies, variuſque labor mutabilis ævi
Retulit in melius. . . . .
. . . . Virg.

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THE USE OF TABLE I.

LET the Year of our Lord 1913 be propoſed for example: divide, firſt, the 19 hundreds *(a)* by the number 4, and you will have 3 for a remainder; then, look for the 13 units *(a)* in the Table, and coming down the ſame column till you meet with the number 3, there you will find in the ſame ſquare, the letter E, which is the Dominical Letter for the Year of our Lord 1913.

If a number of Years has more than four figures, it will not be neceſſary, that you divide, according to rule, the hundreds with all the preceding figures by the number 4; but it will be ſufficient, that you divide the two laſt figures only *(b)*. For example: were 792938242097 the propoſed Year of our Lord, you only want to divide the 20 hundreds by the number 4, and you will have no remainder; then you look for the 97 units in the Table, and (as you have found no remainder) you come down the column till you are in the ſquare which is not numbered, and there you will find the letter F, which is the Dominical Letter, not only for the Year 2097, but for any Year, the four laſt figures of which will be 2097.

You muſt obſerve, that when the hundreds are under 4, no diviſion needs then take place. For example: were 15 the given Year of our Lord, you would find the Dominical Letter D in the ſquare not numbered; if the Year were 115, you would find F in the ſquare numbered 1; &c. but were 415 the Year, now you muſt divide the 4 hundreds by 4, and as nothing remains, you will find in the ſquare not numbered the Dominical Letter D. &c.

You will further obſerve, that the figures in red expreſs the Biſſextiles, and that they are repeated, becauſe the Biſſextiles have two Dominical Letters; the one, viz. that on your left, to be made uſe of in January and February; and the other, in March, and the ſucceeding Months, to the end of the Year.

THE USE OF TABLE II.

THE Uſe of this Table is exactly ſimilar to that of Table I, except, that heed ſhall be taken here to reverſe the order of the Dominical Letters in the Biſſextiles. For example: were 5 Years before Chriſt, the propoſed number, you would find F, G, which you muſt make G, F.

THE USE OF TABLE III.

WHEN you have got the Dominical Letter for a Year, if you look in this Table under it, you will find the Day of the Week every Month in the Year enters on. Suppoſe, for example, the Dominical Letter of the Year propoſed, to be C: you look under C in the Table, and find Friday againſt January; Monday againſt February; Monday againſt March; Thurſday againſt April; &c. that is to ſay, the firſt Day of January is a Friday; the firſt of February, a Monday; &c. In the Biſſextiles, you muſt take care to look for the reſpective Months under the proper Dominical Letter. Suppoſe, for example, to have G, F: you muſt look under G, for January and February; and then, under F, for all the other Months.

(a) By hundreds, it is, as well here as hereafter, underſtood the hundreds with all the preceding figures; and by units, it is underſtood the tens of units likewiſe, or, which comes to the ſame, the two laſt figures.

(b) As this may, perhaps, appear an extraordinary doctrine, I here ſay a few words to account for it: the hundreds being multiples of 4, will leave no remainder, when divided by it; therefore, the remainder will be the ſame, either, if the whole number be divided, or, the two laſt figures only.

TABLE I.

A
PERPETUAL TABLE
TO FIND THE
DOMINICAL LETTER
For YEARS after CHRIST.

00		01	02	03	04	04	05
	06	07	08	08	09	10	11
	12	12	13	14	15	16	16
	17	18	19	20	20	21	22
	23	24	24	25	26	27	28
	28	29	30	31	32	32	33
	34	35	36	36	37	38	39
	40	40	41	42	43	44	44
	45	46	47	48	48	49	50
	51	52	52	53	54	55	56
	56	57	58	59	60	60	61
	62	63	64	64	65	66	67
	68	68	69	70	71	72	72
	73	74	75	76	76	77	78
	79	80	80	81	82	83	84
	84	85	86	87	88	88	89
	90	91	92	92	93	94	95
	96	96	97	98	99		
B A	A	G	F	E	D	C	B
1. C	1. C	1. B	1. A	1. G	1. F	1. E	1. D
2. E	2. E	2. D	2. C	2. B	2. A	2. G	2. F
3. G	3. G	3. F	3. E	3. D	3. C	3. B	3. A

TABLE II.

A
PERPETUAL TABLE
TO FIND THE
DOMINICAL LETTER
For YEARS before CHRIST.

00	01			02	03	04	05	05
		06	07	08	09	09	10	11
		12	13	13	14	15	16	17
		17	18	19	20	21	21	22
		23	24	25	25	26	27	28
		29	29	30	31	32	33	33
		34	35	36	37	37	38	39
		40	41	41	42	43	44	45
		45	46	47	48	49	49	50
		51	52	53	53	54	55	56
		57	57	58	59	60	61	61
		62	63	64	65	65	66	67
		68	69	69	70	71	72	73
		73	74	75	76	77	77	78
		79	80	81	81	82	83	84
		85	85	86	87	88	89	89
		90	91	92	93	93	94	95
		96	97	97	98	99		
G	A B	A	B	C	D	E	F	G
1. F	1. G	1. F	1. G	1. A	1. B	1. C	1. D	1. E
2. D	2. E	2. D	2. E	2. F	2. G	2. A	2. B	2. C
3. B	3. C	3. B	3. C	3. D	3. E	3. F	3. G	3. A

TABLE III.

A
PERPETUAL TABLE
TO FIND THE
DAYS OF THE WEEK.

G	F	E	D	C	B	A	
m	tu	w	th	f	s	S	January.
th	f	s	S	m	tu	w	February.
th	f	s	S	m	tu	w	March.
S	m	tu	w	th	f	s	April.
tu	w	th	f	s	S	m	May.
f	s	S	m	tu	w	th	June.
S	m	tu	w	th	f	s	July.
w	th	f	s	S	m	tu	Auguſt.
s	S	m	tu	w	th	f	September.
m	tu	w	th	f	s	S	October.
th	f	s	S	m	tu	w	November.
s	S	m	tu	w	th	f	December.

THE USE OF TABLE IV.

LET the Year of our Lord 2816 be propoſed for example: divide, firſt, the 28 hundreds by 7, and you will have no remainder; then, look for the 16 units in the upper part of the Table, and coming down the ſame column till you are in the line indicated by 0, there you will find the number 25, which is the Cycle of the Sun for the Year of our Lord 2816.

Let the Year of our Lord 300 be propoſed for another example: as the hundreds in this example are under 7, there is no occaſion for the diviſion; ſo, you only want to look for 00 in the Table, and coming down the column till you are in the line indicated by 3, there you will find the number 1, which is the Cycle of the Sun for the Year of our Lord 300.

THE USE OF TABLE V.

THE Uſe of this Table is perfectly ſimilar to that of Table IV: ſo that, were, for example, 1780 the propoſed number of Years before Chriſt, you divide the 17 hundreds by 7, and will have 3 for a remainder; then you look for the 80 units in the upper part of the Table, and coming down the column till you are in the line indicated by 3, there you will find the number 22, which is the Cycle of the Sun for the propoſed Year 1780 before Chriſt.

TABLE IV.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE SUN
For YEARS after CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99												
0	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8
1	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
2	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12
3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
4	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
5	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	3	4
6	21	22	23	24	25	26	27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

TABLE V.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE SUN
For YEARS before CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83
	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99												
0	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11
1	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23
2	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7
3	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19
4	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
5	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27	26	25	24	23	22	21	20	19	18	17	16	15
6	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	28	27

THE USE OF TABLE VI.

LET the Year of our Lord 129 be propoſed for example: look in the upper part of the Table for the 29 units, and coming down the ſame column till you are in the line indicated by 1, there you will find the number 16, which is the Golden Number for the Year of our Lord 129.

If the number of hundreds exceeds 18, as it is not then to be found in the firſt column, you muſt divide it by 19, and you certainly will find therein the remainder: for example; were 3807 the propoſed Year of our Lord, you divide the 38 hundreds by 19, and you will have 0 for a remainder; then you look for the 07 units in the Table, and coming down the column till you are in the line indicated by 0, there you will find the number 8, which is the Golden Number for the Year of our Lord 3807.

TABLE VI.

A PERPETUAL TABLE TO FIND THE CYCLE OF THE MOON, OR GOLDEN NUMBER, For YEARS after CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37
	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56
	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94
	95	96	97	98	99														
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5
2	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10
3	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
4	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1
5	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6
6	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11
7	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
8	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2
9	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7
10	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12
11	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
12	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3
13	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8
14	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13
15	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
16	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	1	2	3	4
17	10	11	12	13	14	15	16	17	18	19	1	2	3	4	5	6	7	8	9
18	15	16	17	18	19	1	2	3	4	5	6	7	8	9	10	11	12	13	14

THE USE OF TABLE VII.

YOU muſt proceed in this Table exactly as in Table VI; ſo that, were, for example, 129 the propoſed number of Years before Chriſt, you would find 6 for the Golden Number: and if the propoſed number were 3807, you would find the Golden Number to be 14.

TABLE VII.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE MOON,
OR
GOLDEN NUMBER,
For YEARS before CHRIST.

	00 19 38 57 76 95	01 20 39 58 77 96	02 21 40 59 78 97	03 22 41 60 79 98	04 23 42 61 80 99	05 24 43 62 81	06 25 44 63 82	07 26 45 64 83	08 27 46 65 84	09 28 47 66 85	10 29 48 67 86	11 30 49 68 87	12 31 50 69 88	13 32 51 70 89	14 33 52 71 90	15 34 53 72 91	16 35 54 73 92	17 36 55 74 93	18 37 56 75 94
0	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3
1	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17
2	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12
3	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7
4	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2
5	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16
6	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11
7	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6
8	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
9	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15
10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10
11	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5
12	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19
13	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14
14	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9
15	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4
16	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	19	18
17	12	11	10	9	8	7	6	5	4	3	2	1	19	18	17	16	15	14	13
18	7	6	5	4	3	2	1	19	18	17	16	15	14	13	12	11	10	9	8

THE USE OF TABLE VIII.

LET the Year of our Lord 3000 be propoſed for example: you muſt here divide the 30 hundreds by 3, and you will have no remainder; then you look for 00 units in the upper part of the Table, and coming down the ſame column till you are in the line indicated by 0, there you will find the number 3, which is the Roman Indiction for the Year of our Lord 3000.

If the number of hundreds is under 3, no diviſion then takes place: for example; were 92 the propoſed Year of our Lord, you only want to look for the 92 units in the Table, and coming down the column till you are in the line indicated by 0, there you will find 5, which is the Roman Indiction for the Year of our Lord 92.

THE USE OF TABLE IX.

WERE 3000 the propoſed number of Years before Chriſt, by proceeding exactly as in the preceding Table, you would find 4 for the Roman Indiction: and you would find 2, if the propoſed number of Years before Chriſt, were 92.

TABLE VIII.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE ROMAN INDICTION
For YEARS after CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
	90	91	92	93	94	95	96	97	98	99					
0	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2
1	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12
2	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7

TABLE IX.

A
PERPETUAL TABLE
TO FIND THE
CYCLE OF THE ROMAN INDICTION
For YEARS before CHRIST.

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14
	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74
	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89
	90	91	92	93	94	95	96	97	98	99					
0	4	3	2	1	15	14	13	12	11	10	9	8	7	6	5
1	9	8	7	6	5	4	3	2	1	15	14	13	12	11	10
2	14	13	12	11	10	9	8	7	6	5	4	3	2	1	15

THE

THE USE OF TABLE X.

SUPPOSE, for example, you require to know the Epact for the Year of our Lord 9988: look in the Table for the 99 hundreds, (they are to be found in the ſecond column) and note in the third column the number 13, juſt ſtanding againſt them; then, look in the firſt column of Table XII for the ſame number 13, and guiding your eye laterally in one ſame line till you are in the column under the Golden Number 14, (the Golden Number for the Year of our Lord 9988) there you will find 18, which is the required Epact.

When a number has more than four figures, you muſt look for the overplus in the third column: for example; were 299988 the propoſed Year of our Lord, you muſt (after having got, as above, the number 13 for the 99 hundreds) look for 29 in the third column, and note in the fourth the number 17, which ſtands againſt it; then you add 17 to 13, and you will have the number 30, which, for being above 29, muſt be divided by 30, and you will then have no remainder: now, you only want to look for 0 in the firſt column of Table XII, and guiding your eye laterally till you are in the column under the Golden Number 17, (it being the Golden Number for the Year of our Lord 299988) there you will find 4 for the required Epact.

Obſerve, that you may by this Table reſolve any number of Years; for, when the number, expreſſed by the figures which precede the four laſt, is above 29, you muſt divide it by 30, and you will certainly then find the remainder in the third column: for example; were 6039988 the propoſed Year, you then divide 603 by 30, and will have for a remainder the number 3, which is to be found, as I ſaid, in the third column; and as you will find againſt it the number 9 in the fourth column, you add 9 to 13, (13 is the number given by the 99 hundreds, as it was found above) and you will have 22, which is the number you muſt look for in the firſt column of Table XII, if you will proceed, and get the Epact for the Year of our Lord 6039988.

THE USE OF TABLE XI.

YOU muſt here proceed as in the foregoing Table, except, that when the number of units of the given Year is above 1, you muſt add 1 to the number of hundreds: for example; were 210 the propoſed Year before Chriſt, you muſt look for 03 hundreds in the Table, and not for 02, for the reaſon, that the number of units is above 1, it being 10 in the propoſed example: but were, on the contrary, the propoſed number of Years, 200 or 201, then you muſt look in the Table for 02 hundreds, according to the general rule, becauſe, in neither of theſe examples, the number of units exceeds the number 1. It will not be amiſs, you here obſerve, that the addition of the number 1 to the hundreds is only made in regard to the uſe of this Table; for, when making uſe of Table VII, to get the Golden Number, you muſt then operate upon the real, unaltered number of Years.

TABLE

TABLE X.

A
PERPETUAL TABLE
TO FIND THE
EPACT
For any YEAR in any CENTURY after CHRIST.

I			II			III	IV
		00	- - -	67.	69	0	0
	01.	02	70.	71.	72	1	13
03.	04.	05	- - -	73.	74	2	26
	{06.	08	75.	76.	77	3	9
	07.	09	- -	{78.	80	4	22
10.	11.	12	- -	79.	81	5	5
	13.	14	82.	83.	84	6	18
	15.	16	- - -	85.	86	7	1
	17.	18	87.	88.	89	8	14
19.	20.	21	- - -	- -	90	9	27
	{22.	24	91.	92.	93	10	10
	23.	25	- -	{94.	96	11	23
26.	27.	28	- -	95.	97	12	6
	29.	30	98	99.	- -	13	19
31.	32.	33	——		——	14	2
	{34.	36	——		——	15	15
	35.	37	——		——	16	28
38.	39.	40	——		——	17	11
		41	——		——	18	24
42.	43.	44	——		——	19	7
	45.	46	——		——	20	20
47.	48.	49	——		——	21	3
	{50.	52	——		——	22	16
	51.	53	——		——	23	29
54.	55.	56	——		——	24	12
	57.	58	——		——	25	25
59.	60.	61	——		——	26	8
	{62.	64	——		——	27	21
	63.	65	——		——	28	4
	66.	68	——		——	29	17

TABLE XI.

A
PERPETUAL TABLE
TO FIND THE
EPACT
For any YEAR in any CENTURY before CHRIST.

I			II			III	IV
00.	01.	02	- - -	70.	71	0	0
	{03.	05	72.	73.	74	29	13
	04.	06	- -	{75.	77	28	26
07.	08.	09	- -	76.	78	27	9
		10	79.	80.	81	26	22
11.	12.	13	- - -	82.	83	25	5
	14.	15	- - -	84.	85	24	18
16.	17.	18	- - -	86.	87	23	1
	{19.	21	88.	89.	90	22	14
	20.	22	- -	{91.	93	21	27
23.	24.	25	- -	92.	94	20	10
	26.	27	95.	96.	97	19	23
28.	29.	30	- - -	98.	99	18	6
	{31.	33	——		——	17	19
	32.	34	——		——	16	2
	{35.	37	——		——	15	15
	36.	38	——		——	14	28
39.	40.	41	——		——	13	11
	42.	43	——		——	12	24
44.	45.	46	——		——	11	7
	{47.	49	——		——	10	20
	48.	50	——		——	9	3
51.	52.	53	——		——	8	16
	54.	55	——		——	7	29
56.	57.	58	——		——	6	12
		59	——		——	5	25
60.	61.	62	——		——	4	8
	{63.	65	——		——	3	21
	64.	66	——		——	2	4
67.	68.	69	——		——	1	17

THE USE OF TABLE XII.

THE Uſe of this Table depends on that of Tables X and XI: therefore, you are there referred to.

TABLE XII.

GENERAL TABLE OF EPACTS.

THE GOLDEN NUMBERS.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
	EPACTS.																		
0	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26
1	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv
2	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24
3	5	16	27	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23
4	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22
5	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21
6	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9	20
7	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19
8	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18
9	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17
10	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16
11	27	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15
12	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14
13	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13
14	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9	20	1	12
15	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11
16	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10
17	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9
18	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8
19	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7
20	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6
21	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5
22	16	27	8	19	0	11	22	3	14	25	6	17	28	9	20	1	12	23	4
23	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0	11	22	3
24	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29	10	21	2
25	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28	9	20	1
26	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27	8	19	0
27	11	22	3	14	25	6	17	28	9	20	1	12	23	4	15	26	7	18	29
28	10	21	2	13	24	5	16	27	8	19	0	11	22	3	14	xxv	6	17	28
29	9	20	1	12	23	4	15	26	7	18	29	10	21	2	13	24	5	16	27

THE CALENDAR OF GREGORY XIII.

JANUARY.			FEBRUARY.			MARCH.			APRIL.			MAY.			JUNE.		
EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.
0	1	A	29	1	D	0	1	D	29	1	G	28	1	B	27	1	E
29	2	B	28	2	E	29	2	E	28	2	A	27	2	C	xxv. 26	2	F
28	3	C	27	3	F	28	3	F	27	3	B	26	3	D	25. 24	3	G
27	4	D	xxv. 26	4	G	27	4	G	xxv. 26	4	C	xxv. 25	4	E	23	4	A
26	5	E	25. 24	5	A	26	5	A	25. 24	5	D	24	5	F	22	5	B
xxv. 25	6	F	23	6	B	xxv. 25	6	B	23	6	E	23	6	G	21	6	C
24	7	G	22	7	C	24	7	C	22	7	F	22	7	A	20	7	D
23	8	A	21	8	D	23	8	D	21	8	G	21	8	B	19	8	E
22	9	B	20	9	E	22	9	E	20	9	A	20	9	C	18	9	F
21	10	C	19	10	F	21	10	F	19	10	B	19	10	D	17	10	G
20	11	D	18	11	G	20	11	G	18	11	C	18	11	E	16	11	A
19	12	E	17	12	A	19	12	A	17	12	D	17	12	F	15	12	B
18	13	F	16	13	B	18	13	B	16	13	E	16	13	G	14	13	C
17	14	G	15	14	C	17	14	C	15	14	F	15	14	A	13	14	D
16	15	A	14	15	D	16	15	D	14	15	G	14	15	B	12	15	E
15	16	B	13	16	E	15	16	E	13	16	A	13	16	C	11	16	F
14	17	C	12	17	F	14	17	F	12	17	B	12	17	D	10	17	G
13	18	D	11	18	G	13	18	G	11	18	C	11	18	E	9	18	A
12	19	E	10	19	A	12	19	A	10	19	D	10	19	F	8	19	B
11	20	F	9	20	B	11	20	B	9	20	E	9	20	G	7	20	C
10	21	G	8	21	C	10	21	C	8	21	F	8	21	A	6	21	D
9	22	A	7	22	D	9	22	D	7	22	G	7	22	B	5	22	E
8	23	B	6	23	E	8	23	E	6	13	A	6	23	C	4	23	F
7	24	C	5	24	F	7	24	F	5	24	B	5	24	D	3	24	G
6	25	D	4	25	G	6	25	G	4	25	C	4	25	E	2	25	A
5	26	E	3	26	A	5	26	A	3	26	D	3	26	F	1	26	B
4	27	F	2	27	B	4	27	B	2	27	E	2	27	G	0	27	C
3	28	G	1	28	C	3	28	C	1	28	F	1	28	A	29	28	D
2	29	A				2	29	D	0	29	G	0	29	B	28	29	E
1	30	B				1	30	E	29	30	A	29	30	C	27	30	F
0	31	C				0	31	F				28	31	D			

THE USE OF THE CALENDAR.

THE principal Uſes of the Calendar are theſe:

1°. You may have the Sundays, and conſequently every other Day of the Week, pointed out throughout the Year, by means of the Dominical Letters. For example: ſuppoſe C to be the Dominical Letter,

THE CALENDAR OF GREGORY XIII.

JULY.			AUGUST.			SEPTEMBER.			OCTOBER.			NOVEMBER.			DECEMBER.		
EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.	EPACTS.	M. D.	D. L.
26	1	G	25. 24	1	C	23	1	F	22	1	A	21	1	D	20	1	F
xxv. 25	2	A	23	2	D	22	2	G	21	2	B	20	2	E	19	2	G
24	3	B	22	3	E	21	3	A	20	3	C	19	3	F	18	3	A
23	4	C	21	4	F	20	4	B	19	4	D	18	4	G	17	4	B
22	5	D	20	5	G	19	5	C	18	5	E	17	5	A	16	5	C
21	6	E	19	6	A	18	6	D	17	6	F	16	6	B	15	6	D
20	7	F	18	7	B	17	7	E	16	7	G	15	7	C	14	7	E
19	8	G	17	8	C	16	8	F	15	8	A	14	8	D	13	8	F
18	9	A	16	9	D	15	9	G	14	9	B	13	9	E	12	9	G
17	10	B	15	10	E	14	10	A	13	10	C	12	10	F	11	10	A
16	11	C	14	11	F	13	11	B	12	11	D	11	11	G	10	11	B
15	12	D	13	12	G	12	12	C	11	12	E	10	12	A	9	12	C
14	13	E	12	13	A	11	13	D	10	13	F	9	13	B	8	13	D
13	14	F	11	14	B	10	14	E	9	14	G	8	14	C	7	14	E
12	15	G	10	15	C	9	15	F	8	15	A	7	15	D	6	15	F
11	16	A	9	16	D	8	16	G	7	16	B	6	16	E	5	16	G
10	17	B	8	17	E	7	17	A	6	17	C	5	17	F	4	17	A
9	18	C	7	18	F	6	18	B	5	18	D	4	18	G	3	18	B
8	19	D	6	19	G	5	19	C	4	19	E	3	19	A	2	19	C
7	20	E	5	20	A	4	20	D	3	20	F	2	20	B	1	20	D
6	21	F	4	21	B	3	21	E	2	21	G	1	21	C	0	21	E
5	22	G	3	22	C	2	22	F	1	22	A	0	22	D	29	22	F
4	23	A	2	23	D	1	23	G	0	23	B	29	23	E	28	23	G
3	24	B	1	24	E	0	24	A	29	24	C	28	24	F	27	24	A
2	25	C	0	25	F	29	25	B	28	25	D	27	25	G	26	25	B
1	26	D	29	26	G	28	26	C	27	26	E	xxv. 26	26	A	xxv. 25	26	C
0	27	E	28	27	A	27	27	D	26	27	F	25. 24	27	B	24	27	D
29	28	F	27	28	B	xxv. 26	28	E	xxv. 25	28	G	23	28	C	23	28	E
28	29	G	26	29	C	25. 24	29	F	24	29	A	22	29	D	22	29	F
27	30	A	xxv. 25	30	D	23	30	G	23	30	B	21	30	E	21	30	G
xxv.26	31	B	24	31	E				22	31	C				xix.20	31	A

Letter, and the Days againſt which C is ſet, will all be Sundays; all Mondays, thoſe againſt which D is ſet; all Tueſdays, thoſe againſt which is E &c.

2°. You may by the Epacts have the Days of the New and Full Moons throughout the Year. For example: ſuppoſe you have 23 for the Epact; then, the 8 of January, 6 of February, 8 of March &c. againſt which the Epact 23 is ſet, will be Days of the New Moon; and if you tell fourteen from the

Day of the New Moon incluſively, you will have the Days of the Full Moon; ſo you will find the 21 of January, 19 of February, 21 of March &c. to be Days of the Full Moon.

3°. You may, laſtly, by means of the Epact and of the Dominical Letter, find Eaſter-Day. Suppoſe, for example, the Epact to be 18, D the Dominical Letter: you muſt look for the Epact againſt one Day between the 8 of March and the 5 of April, both incluſive; ſo you find the Epact 18 to be againſt the 13 of March; and telling fourteen from this Day incluſively, you will find the Full Moon to be at the 26: then, the firſt Sunday after will be Eaſter-Day, and it will here be at the 29, ſince D is the Dominical Letter. Now, if you look in Table XVI for March 29 in the column of Eaſter-Day, you will find in the ſame line with it, all the Moveable Feaſts through the whole Year, determined.

Note. In the Appendix, wherein I treat of Epacts, I intend giving ſome explanation of the Calendar, as far as it relates to them. Here, I only want to make the Reader obſerve, that the New Moons are pointed out by the Calendar, two Days after the Conjunction; the Full Moons, however, are given at the Days of the Oppoſition, ſince fourteen only are told inſtead of ſixteen. In the firſt Edition of the Gregorian Calendar, publiſhed in the Year 1780, I gave a particular Table, not in the form of the Calendar, wherein the New Moons are given at thoſe Days on which they really happen; but I could not here with any propriety remove the Epacts in the Calendar, ſince they occupy their only proper ſeat, as I will ſhow in the Appendix.

THE USE OF TABLE XIV.

YOU may, independently of the Calendar, find Eaſter-Day by this, and the following Table. In the uſe of this, ſuppoſe, for example, the Epact to be 18, and the Dominical Letter D: look firſt in Table XIII for the Epact 18, and againſt it you find March 26, which is the Day of the Paſchal Full Moon; then look in Table XIV under the Dominical Letter D for the firſt Day, there to be found, after the 26 of March, and you will find March 29 for the required Day. If you now look in Table XVI for March 29 in the column of Eaſter-Day, you will find in the ſame line with it, all the Moveable Feaſts through the whole Year, determined. Note, that when a Year has two Dominical Letters, you muſt look under that, which is made uſe of from March to the end of the Year.

THE USE OF TABLE XV.

IF you will find Eaſter-Day by this Table, from the letter which ſtands againſt the Epact for the Year, deſcend till you meet with the Dominical Letter of the ſame Year, and you will find againſt it in the third column a number, which, looked for in the firſt column of Table XVI, will give in one ſame line with it, the reſpective Days, which, Eaſter, and all the depending Moveable Feaſts, fall on in that Year.

TABLE

TABLE XIII.

TABLE OF THE PASCHAL FULL MOONS.

Epacts.	Paschal Full Moons.
0	April 13
1	April 12
2	April 11
3	April 10
4	April 9
5	April 8
6	April 7
7	April 6
8	April 5
9	April 4
10	April 3
11	April 2
12	April 1
13	March 31
14	March 30
15	March 29
16	March 28
17	March 27
18	March 26
19	March 25
20	March 24
21	March 23
22	March 22
23	March 21
24	April 18
25	April 18
xxv	April 17
26	April 17
27	April 16
28	April 15
29	April 14

TABLE XIV.

A PERPETUAL TABLE TO FIND EASTER-DAY.

A	B	C	D	E	F	G
March 26	March 27	March 28	March 22	March 23	March 24	March 25
April 2	April 3	April 4	March 29	March 30	March 31	April 1
- - - 9	- - - 10	- - - 11	April 5	April 6	April 7	- - - 8
- - - 16	- - - 17	- - - 18	- - - 12	- - - 13	- - - 14	- - - 15
- - - 23	- - - 24	- - - 25	- - - 19	- - - 20	- - - 21	- - - 22

TABLE XV.

ANOTHER TABLE TO FIND EASTER-DAY.

I Epacts.	II Dominical Letters.	III
23	C	
22	D - -	1
21	E - -	2
20	F - -	3
19	G - -	4
18	A - -	5
17	B - -	6
16	C - -	7
15	D - -	8
14	E - -	9
13	F - -	10
12	G - -	11
11	A - -	12
10	B - -	13
9	C - -	14
8	D - -	15
7	E - -	16
6	F - -	17
5	G - -	18
4	A - -	19
3	B - -	20
2	C - -	21
1	D - -	22
0	E - -	23
29	F - -	24
28	G - -	25
27	A - -	26
26	B - -	27
xxv	B - -	27
25	C - -	28
24	C - -	28
	D - -	29
	E - -	30
	F - -	31
	G - -	32
	A - -	33
	B - -	34
	C - -	35

TABLE XVI.

TABLE OF THE MOVEABLE FEASTS, ACCORDING TO THE SEVERAL DAYS WHICH EASTER CAN POSSIBLY FALL UPON.

	Easter-Day.	Sundays after Epiphany.	Septuageſima-Sunday.	Aſh-Wedneſday.	Rogation-Sunday.	Aſcenſion-Day.	Whit-Sunday.	Trinity-Sunday.	Sundays after Trinity.	Advent-Sunday.
1	Mar. 22	1	Jan. 18	Feb. 4	Apr. 26	Apr. 30	May 10	May 17	27	Nov. 29
2	—— 23	1	—— 19	—— 5	—— 27	May 1	—— 11	—— 18	27	—— 30
3	—— 24	1	—— 20	—— 6	—— 28	—— 2	—— 12	—— 19	27	Dec. 1
4	—— 25	2	—— 21	—— 7	—— 29	—— 3	—— 13	—— 20	27	—— 2
5	—— 26	2	—— 22	—— 8	—— 30	—— 4	—— 14	—— 21	27	—— 3
6	—— 27	2	—— 23	—— 9	May 1	—— 5	—— 15	—— 22	26	Nov. 27
7	—— 28	2	—— 24	—— 10	—— 2	—— 6	—— 16	—— 23	26	—— 28
8	—— 29	2	—— 25	—— 11	—— 3	—— 7	—— 17	—— 24	26	—— 29
9	—— 30	2	—— 26	—— 12	—— 4	—— 8	—— 18	—— 25	26	—— 30
10	—— 31	2	—— 27	—— 13	—— 5	—— 9	—— 19	—— 26	26	Dec. 1
11	Apr. 1	3	—— 28	—— 14	—— 6	—— 10	—— 20	—— 27	26	—— 2
12	—— 2	3	—— 29	—— 15	—— 7	—— 11	—— 21	—— 28	26	—— 3
13	—— 3	3	—— 30	—— 16	—— 8	—— 12	—— 22	—— 29	25	Nov. 27
14	—— 4	3	—— 31	—— 17	—— 9	—— 13	—— 23	—— 30	25	—— 28
15	—— 5	3	Feb. 1	—— 18	—— 10	—— 14	—— 24	—— 31	25	—— 29
16	—— 6	3	—— 2	—— 19	—— 11	—— 15	—— 25	June 1	25	—— 30
17	—— 7	3	—— 3	—— 20	—— 12	—— 16	—— 26	—— 2	25	Dec. 1
18	—— 8	4	—— 4	—— 21	—— 13	—— 17	—— 27	—— 3	25	—— 2
19	—— 9	4	—— 5	—— 22	—— 14	—— 18	—— 28	—— 4	25	—— 3
20	—— 10	4	—— 6	—— 23	—— 15	—— 19	—— 29	—— 5	24	Nov. 27
21	—— 11	4	—— 7	—— 24	—— 16	—— 20	—— 30	—— 6	24	—— 28
22	—— 12	4	—— 8	—— 25	—— 17	—— 21	—— 31	—— 7	24	—— 29
23	—— 13	4	—— 9	—— 26	—— 18	—— 22	June 1	—— 8	24	—— 30
24	—— 14	4	—— 10	—— 27	—— 19	—— 23	—— 2	—— 9	24	Dec. 1
25	—— 15	5	—— 11	—— 28	—— 20	—— 24	—— 3	—— 10	24	—— 2
26	—— 16	5	—— 12	Mar. 1	—— 21	—— 25	—— 4	—— 11	24	—— 3
27	—— 17	5	—— 13	—— 2	—— 22	—— 26	—— 5	—— 12	23	Nov. 27
28	—— 18	5	—— 14	—— 3	—— 23	—— 27	—— 6	—— 13	23	—— 28
29	—— 19	5	—— 15	—— 4	—— 24	—— 28	—— 7	—— 14	23	—— 29
30	—— 20	5	—— 16	—— 5	—— 25	—— 29	—— 8	—— 15	23	—— 30
31	—— 21	5	—— 17	—— 6	—— 26	—— 30	—— 9	—— 16	23	Dec. 1
32	—— 22	6	—— 18	—— 7	—— 27	—— 31	—— 10	—— 17	23	—— 2
33	—— 23	6	—— 19	—— 8	—— 28	June 1	—— 11	—— 18	23	—— 3
34	—— 24	6	—— 20	—— 9	—— 29	—— 2	—— 12	—— 19	22	Nov. 27
35	—— 25	6	—— 21	—— 10	—— 30	—— 3	—— 13	—— 20	22	—— 28

NOTE, that in the Biſſextiles, the number of Sundays after Epiphany will be the ſame, as if Eaſter-Day had fallen one Day later than it really falleth. You muſt for the ſame reaſon add one Day in every Biſſextile to the Day of the Month given by the Table for Septuageſima-Sunday: and the like you muſt do for Aſh-Wedneſday, whenever the Day given for it by the Table, is in the Month of February.

In Order to exhibit at one View all that can be reſolved by the foregoing TABLES, here follows

A

GENERAL EXAMPLE.

ANNO DOMINI 172293, being the Firſt after BISSEXTILE.

CHRONOLOGICAL NOTES.

DOMINICAL LETTER, A.
CYCLE OF THE SUN, 18.
GOLDEN NUMBER, 2.
EPACT, 28.
ROMAN INDICTION, 6.

MOVEABLE FEASTS.

SEPTUAGESIMA-SUNDAY, February 12.
ASH-WEDNESDAY, March 1.
EASTER-DAY, April 16.
ROGATION-SUNDAY, May 21.
ASCENSION-DAY, May 25.
WHIT-SUNDAY, June 4.
TRINITY-SUNDAY, June 11.
ADVENT-SUNDAY, December 3.

DAYS OF THE WEEK; and NEW AND FULL MOONS.

January	enters on	a Sunday.	New Moon, the 3d.	Full Moon, the 16th.
February	———	a Wedneſday.	New Moon, the 2d.	Full Moon, the 15th.
March	———	a Wedneſday.	New Moon, the 3d.	Full Moon, the 16th.
April	———	a Saturday.	New Moon, the 2d.	Full Moon, the 15th.
May	———	a Monday.	New Moon, the 1ſt & 31ſt.	Full Moon, the 14th.
June	———	a Thurſday.	Full Moon, the 13th.	New Moon, the 29th.
July	———	a Saturday.	Full Moon, the 12th.	New Moon, the 29th.
Auguſt	———	a Tueſday.	Full Moon, the 11th.	New Moon, the 27th.
September	———	a Friday.	Full Moon, the 9th.	New Moon, the 26th.
October	———	a Sunday.	Full Moon, the 9th.	New Moon, the 25th.
November	———	a Wedneſday.	Full Moon, the 7th.	New Moon, the 24th.
December	———	a Friday.	Full Moon, the 7th.	New Moon, the 23d.

If (with all due reſpect to Authorities) we now fancy the ſame number of Years to be before Chriſt, it will run as follows in the next Page.

ANNO 172293 before CHRIST, being BISSEXTILE.

CHRONOLOGICAL NOTES.

Dominical Letters, A, G.
Cycle of the Sun, 1.
Golden Number, 1.
Epact, 29.
Roman Indiction, 1.

DAYS of the WEEK; and NEW and FULL MOONS.

January enters on	a Sunday.	New Moon, the 2d.	Full Moon, the 15th.
February ———	a Wedneſday.	New Moon, the 1ſt.	Full Moon, the 14th.
March ———	a Thurſday.	New Moon, the 2d.	Full Moon, the 15th.
April ———	a Sunday.	New Moon, the 1ſt. & 30th.	Full Moon, the 14th.
May ———	a Tueſday.	Full Moon, the 13th.	New Moon, the 30th.
June ———	a Friday.	Full Moon, the 12th.	New Moon, the 28th.
July ———	a Sunday.	Full Moon, the 11th.	New Moon, the 28th.
Auguſt ———	a Wedneſday.	Full Moon, the 10th.	New Moon, the 26th.
September ———	a Saturday.	Full Moon, the 8th.	New Moon, the 25th.
October ———	a Monday.	Full Moon, the 8th.	New Moon, the 24th.
November ———	a Thurſday.	Full Moon, the 6th.	New Moon, the 23d.
December ———	a Saturday.	Full Moon, the 6th.	New Moon, the 22d.

OF THE NEW CYCLE OF THE SUN.

FROM the new revolution of the Dominical Letters in 400 Years (as may be ſeen in Table I.) a new Cycle of the Sun naturally takes its riſe. If then, you will have the Year of this new Cycle, you muſt divide the Year of our Lord by 400, and the remainder, or the diviſor if nothing remaineth, will give you the required Year: ſo, you would find the Year of our Lord 3397, for example, to be the 197th Year of this new Cycle of the Sun; and the Year 3600, the 400th.

If the given number of Years were before Chriſt, you divide it by 400, and ſubſtract the remainder, or the diviſor if nothing remaineth, from 401, and the new remainder will be the Year of the New Cycle of the Sun. For example; the Year 5 before Chriſt, is the 396th of the Cycle; the Year 800, the 1ſt.

OF THE NEW, OR GREAT CYCLE OF THE MOON.

THIS new Cycle of the Moon originates from the revolution of the Epacts in 300000 Years, as to be ſeen in Table X. If you add (c) 1000 to any given number of Years, the ſum, if it does not exceed 300000, will be the Year of this new Cycle; otherwiſe it muſt be divided by 300000, and the remainder will then be the Year of the Cycle: ſo, were, for example, the Year of our Lord 200001, by adding 1000 to it, you would have 201001 for the Year of the New Cycle of the Moon, as it does not exceed 300000; but if the given Year were 299500, for example, then, adding 1000 to it, you would have 300500, which muſt be divided by 300000, and the remainder 500 will be the Year of the Cycle.

If the given number of Years were before Chriſt, you add 299000 to it, and ſubſtract the ſum from 300001, and the remainder will be the Year of the New Cycle of the Moon. For example; the Year 100 before Chriſt, is the 901ſt of the Cycle; the Year 1526, the 299475th: in this laſt example the ſum 300526 has been divided by 300000, becauſe it exceeded this number, and then the remainder 526 has been ſubſtracted from 300001.

(c) In the former Edition of the Gregorian Calendar, I began this Cycle from the Chriſtian Æra for better convenience in one reſpect; now, however, I think it more proper, to let the Cycle begin 1000 Years before Chriſt, where it really has its beginning.

OF THE VICTORIAN OR DIONYSIAN PERIOD.

THE Victorian Period is of 532 Years, (the number 532 is the product of the Cycle of the Sun 28, and the Cycle of the Moon 19) and it always begins when the Cycle of the Sun, and the Cycle of the Moon, are both 1. This happened the Year 457 before Chriſt, the Years of our Lord 76, 608, 1140, 1672; and will happen again in the Year 2204. If you add 457 to the Year of our Lord, and divide the ſum by 532, the remainder, or the diviſor if nothing remaineth, will give you the Year of this Period. Were then, the Year of our Lord 2204 propoſed for example, you would find it to be the 1ſt of the Victorian Period; and if the Year of our Lord were 2203, it would then be the 532d.

For Years before Chriſt, you muſt add 75 to the given Year, and ſubſtract the ſum from 533, and the remainder will be the Year of the Victorian Period. The Year 15 before Chriſt, for example, is the 443d of the Period; the Year 629, the 361ſt: in this laſt example the ſum 704 has been divided by 532, becauſe it exceeded this number, and then the remainder 172 has been ſubſtracted from 533.

You may obſerve, that by the Year of the Victorian Period, you may have the Cycle of the Sun, and the Cycle of the Moon: if you divide the Year of the Period by 28, the remainder will give you the Cycle of the Sun; if the Year be divided by 19, the remainder gives the Cycle of the Moon.

OF THE JULIAN PERIOD.

THE Julian Period is of 7980 Years, (the number 7980 is the product of the three Cycles 28, 19, and 15) and it begins when the Cycle of the Sun, the Cycle of the Moon, and the Cycle of the Roman Indiction, are each 1; which happened the Year 4713 before Chriſt, and will happen again in the Year of our Lord 3268. To have the Year of this Period, you muſt add 4713 to the Year of our Lord, and the ſum will give you the required Year, which, however, muſt be divided by 7980, when above it: the Year of our Lord 3267, for example, will be the 7980th Year of the Julian Period; and the Year 3268, the 1ſt.

For Years before Chriſt, you muſt add 3267 to the given Year, and ſubſtract the ſum from 7981, and the remainder will be the Year of the Julian Period. The Year 23 before Chriſt, for example, is the 4691ſt of the Period; the Year 5429, the 7265th: in this laſt example the ſum 8696 has been divided by 7980, becauſe it exceeded this number, and then the remainder 716 has been ſubſtracted from 7981.

You may here alſo obſerve, that, if you divide the Year of the Julian Period by 28, 19, or 15, the reſpective remainders will give you the Cycle of the Sun, the Cycle of the Moon, or the Cycle of the Roman Indiction.

OF THE CONVERSION OF THE NEW INTO THE OLD STYLE.

$b-\frac{b}{4}-2=x$. YOU may by this Formula have at any time of the New Style the correſponding Day of the Old One. For example, ſuppoſe you require to know what Day of the Old Style is correſponding to the 9th of February of the Year of our Lord 4215, New Style: ſubſtitute the 42 hundreds to b, and the Formula will become $42-\frac{42}{4}-2=x$, which reduced (fractions omitted) will be $x=30$; viz. 30 Days, which you muſt ſubſtract from the 9th of February, and thus you will find, that the correſponding Day of the Old Style is the 10th of January.

$\frac{d+2}{3}\times 4+r=x$. WHEN you have the number of Days to be ſubſtracted, you may by this ſecond Formula find the number of hundreds of the Years in which they muſt be ſubſtracted: ſuppoſe, for example, you will know in what Century the ſubſtraction of 30 Days is to be made: you ſubſtitute 30 to d, and the remainder of the diviſion to r; then the Formula will become $10\times 4+2=x$, viz. $x=42$ hundreds: ſo you find, that the ſubſtraction of 30 Days is to be made from the Year of our Lord 4200 to the Year 4299, both incluſive.

You may by the latter Formula ſolve the following Queſtion.

When will the 1ſt *of January, Old Style, correſpond to the* 1ſt *of July, New Style?*

It is evident, that it will be when 181 Days are to be ſubſtracted from the 1ſt of July *(d)*: ſo, by ſubſtituting 181 to d, and the remainder of the diviſion to r, you will find $x=244$: therefore, all the Common Years, the hundreds of which are 244, will anſwer the Queſtion.

For Years before Chriſt, you will make uſe of this Formula... $b+2-\frac{b+3}{4}$, inſtead of the firſt; obſerving, primarily, that when the number of units of the given Year is above 1, you muſt add 1 to the number of hundreds; and ſecondarily, that the Days are here to be added, and not ſubſtracted as in Years after Chriſt.

And of the Formula $\frac{d-2}{3}\times 4+r$, inſtead of the ſecond; obſerving, that when you have got the number of hundreds, 42, for example, you muſt ſay, from the Year 4202 to the Year 4301, and not, from the Year 4200 to the Year 4299 as in Years after Chriſt.

(d) In my former Edition of the Gregorian Calendar, I ſaid 180 by miſtake: the 1ſt of July is the 182d Day of the Year; therefore, to have the 1ſt Day of the Year, I muſt ſubſtract 181, and not 180.

A GENERAL NOTE.

THIS Note relates to Years before Chriſt, when they are given from the Creation of the World; in which caſe, you muſt, if you will make uſe of the foregoing Tables, ſubſtract the given Year from the number of Years computed from the Creation to the Chriſtian Æra, and the remainder more 1 will be the number you muſt look for in the Tables: ſuppoſe, for example, the given Year to be the 10th from the Creation, and the Creation to be 4000 Years before Chriſt, you muſt then ſubſtract 10 from 4000, and adding 1 to the remainder 3990, you will have 3991 for the number to be looked for in the Tables: viceverſa, you may know the ſame Year 3991 before Chriſt, for example, to be the Year 10 from the Creation, by ſubſtracting 3991 from 4000, and adding 1 to the remainder 9.

APPENDIX.

OF THE DOCTRINE OF EPACTS.

THE word *Epact* derives from the Greek word επαχτη ſignifying *a ſupplement.* Appoſite is the appellation, ſince *Epacts* are a kind of ſupplement to Lunar Years to adjuſt them or make them equal to Solar Ones. Some, however, derive the word *Epact* from επαγω, *induco.*

Epacts are numbers by means of which the Age of the Moon may at any time be determined: they are of two ſorts; *Annual* or *Menſtrual*; and be thus defined:

Menſtrual *Epacts* are the exceſſes of the Solar Month above the Lunar Synodical Month; or of ſeveral Solar Months above as many Lunar Synodical Months.

Annual *Epacts* are the exceſſes of the Solar Year above the Lunar Year of twelve Synodical Months; or of ſeveral Solar Years above as many Lunar Years of twelve Synodical Months.

As Years as well as Months are divided into Aſtronomical and Civil, you will obſerve, that here the latter are to be underſtood.

Now, to exemplify Menſtrual *Epacts*, let us ſuppoſe the Lunar Year to begin with the Solar: then, as the Lunar Month of January is Full, that is, of 30 Days, and the Solar Month of January, is of 31 Days, the exceſs of the Solar Month above the Lunar, or the *Epact* of the Month of January, is 1 Day, and this will evidently be the *Epact* for the Month of February. Likewiſe, as the Lunar Month of February is Cave or Hollow, that is, of 29 Days, and the Solar Month of February, is of 28 Days, the exceſs of the Solar Month above the Lunar is —1, which added to the *Epact* 1 of the Month of January, will give 0 for the *Epact* of the Month of February, or the *Epact* for the Month of March. By following the ſame reaſoning, in a regular proceſs, it will be found, that the *Epacts* belonging to the reſpective Months, will be as repreſented over ſaid Months in the following line:

0	1	0	1	2	3	4	5	7	7	9	9
January,	February,	March,	April,	May,	June,	July,	Auguſt,	September,	October,	November,	December.
F.	C.	F.	C.	F.	C.	F.	C.	F.	C.	F.	C.

Theſe may be termed *Fixed Epacts*; they never ſuffer any increaſe or decreaſe; and the ſame *Epacts* conſtantly belong to the ſame reſpective Months. The Menſtrual *Epacts* are of no uſe by themſelves, except in the caſe above, wherein the Lunar Year is ſuppoſed to begin with the Solar: in all other caſes, they are uſed jointly with the Annual *Epact*, as it will be ſeen hereafter. The letters F or C under the reſpective Months, are to ſhow, which are the Full Months, and which the Cave.

To exemplify, next, Annual *Epacts*, let us likewiſe ſuppoſe the Lunar Year to begin with the Solar: then, as the Common Lunar Year is of 354 Days, and the Common Solar Year, of 365, the exceſs of the Solar Year above the Lunar, or the Annual *Epact*, is 11 Days: the exceſs, therefore, or the Annual *Epact* of 2 Years, will be compoſed of twice 11 Days, and be 22 Days; ſo the *Epact* of 3 Years will be 33 Days, or rather 3, after the rejection, according to rule, of the Emboliſmic Month; then the *Epact* of 4 Years will be 14 Days; of 5 Years, 25 Days; of 6 Years, 36 Days, that is, 6 Days, and ſo on.

You will obſerve, that the exceſs of the Solar Year above the Lunar is deemed of 11 Days even in Biſſextiles. There are 235 Lunations in a Cycle of 19 Julian Years, viz. 228 at the rate of 12 Lunations a Year, and 7 other becauſe of the 11 Days by which every Solar Year is deemed to exceed the Lunar: theſe latter are the ſeven Emboliſmic or Intercalary Months, compoſed of 30 Days each, the laſt excepted, which is of 29 Days only: in fact, if we multiply the 11 Days by 19, we will have 209 Days, and theſe divided by 30, give 6 in the quotient with a remainder 29. By this it appears, that if we conſidered the exceſs of the Solar Year above the Lunar of 12 Days in Biſſextiles, we never would be able to make up the account.

It is neceſſary you further obſerve, that, for better convenience in practice, it is made a rule always to reject 30, though the laſt of the ſeven Emboliſmic Months, which occur in the Lunar Cycle of 19 Julian Years, be of 29 Days only; but then, by way of compenſation, 12, inſtead of 11, is to be added to the *Epact* of the laſt Year of the Cycle to form the ſucceeding *Epact* of the firſt.

Now, if we ſuppoſe the *Epact* for the 1ſt Year of the Cycle of the Moon to be 11 Days, you will ſee what *Epact* belongs to each Year of the Cycle, by the following Table:

Gold. Numb.	Epacts.	Gold. Numb.	Epacts.	Gold. Numb.	Epacts.	Gold. Numb.	Epacts.
1	11	6	6	11	1	16	26
2	22	7	17	12	12	17	7
3	3	8	28	13	23	18	18
4	14	9	9	14	4	19	29
5	25	10	20	15	15		

And as the New Moons return on the ſame Days every 19th Julian Year, ſo, will the *Cycle of Epacts*, as it is called, expire with the Cycle of the Moon, and then begin again with the ſame. Yet, the ſame Cycle of *Epacts* will not always hold, for, though the New Moons return on the ſame Day every 19th Julian Year, they do not return at the ſame Hour, but ſooner by 1 Hour and 28 Minutes thereabout; and this is deemed to cauſe the anticipation of 1 Day in 312½ Julian Years, and conſequently of 2 Days in 625; of 4 Days in 1250, and of 8 Days in 2500 Julian Years.

Aſtronomers call the New Moon's anticipation of 1 Day, *Proemptoſis* or *Lunar Equation*, and they more conveniently ſuppoſe it to take place at even hundreds, namely, at every 300th Year of the period of 2500 Julian Years; computing the Periods, as if one of them had begun one thouſand Years before Chriſt.

It will, therefore, become neceſſary to increaſe by an unit the *Epact* for thoſe hundredths Years when a Lunar Equation takes place, in order that it may give the New Moons 1 Day earlier than uſual; but this is in the ſuppoſe of Julian Years, as you ſee, for in Gregorian Ones where every hundredth Year, every four hundredth excepted, has been reduced to a Common Year from a Biſſextile in the Julian Account, the retrenchment of 1 Day will cauſe the New Moons to retard 1 Day, and therefore when this retardation, otherwiſe called *Metemptoſis* or *Solar Equation*, takes place, it will be neceſſary to decreaſe by an unit the *Epact*, in order that it may give the New Moons 1 Day later than uſual: this being premiſed, let us ſtate the four different caſes we may meet with: either there will be a Lunar Equation ſingly, or ſingly a Solar One; either both Equations, or none of them: the *Epact* is to be increaſed in the firſt caſe, and decreaſed in the ſecond; in the third it will ſtand unaltered, ſince one Equation deſtroys the effect of the other; and ſo likewiſe it will remain in the fourth, there being no Equation whatever: thus, in the firſt and ſecond caſe, new ſets or Cycles of *Epacts* will be formed, as the ſubſequent *Epacts*, conſtantly increaſing by 11, will alſo be greater or leſs by unit than the correſponding *Epacts* of the preceding 19 Years. The Table XII, here before, exhibits all the different Cycles of *Epacts*: the number of theſe Cycles is thirty, which naturally ariſes from the number of *Epacts* being juſt thirty.

Epacts then, we ſay, are thirty in number; they are all repreſented in the following line:

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30 or 0.

And, as we hinted before, they are numbers by means of which the Age of the Moon may at any time be determined; for, as the *Epact* for a Year expreſſes the number of Days by which the Moon precedes the beginning of the Year, and the *Epact* for a Month expreſſes the number of Days by which the Moon precedes the beginning of the Month, ſo, if you add the Annual and Menſtrual *Epacts* to the given Day of the Month, the ſum muſt give the Age of the Moon at that Day: if you require to know, for example, what is the Age of the Moon at the 7th of May in a Year, the *Epact* for which is 14; you will find the Age of the Moon to be 23 Days; for $14+2+7=23$: 2 is the *Epact* for the Month of May as may be ſeen here before.

You will obſerve 1°. that you muſt reject, according to the general rule, the Emboliſmic Month, which the ſum of the Annual and Menſtrual *Epacts* may occaſionally form; and 2°. that when the ſum of the two *Epacts* together with the given Day of the Month exceeds 30 in Full Months, or 29 in Cave, you ſubſtract accordingly 30 or 29 from the ſum, and the remainder is the Age of the Moon.

You will further obſerve, that the Moon is two Days older than what the Age of the Moon here expreſſes; the reaſon of this, is, that we make uſe of *Epacts* two units lower than what they ought to be to give the true or Aſtronomical Age of the Moon.

By the Age of the Moon you will always know on what Days the New and Full Moons happen, ſince, when the Moon is New, then the 1ſt Day of the Age is told, and when Full, the 14th.

There is, however, a particular Rule to find directly on what Day of any Month in any Year the New Moon falls on, which is as follows: add the Annual and Menſtrual *Epacts* together, and ſubſtract the ſum, rejecting 30 from it, out of 30 in Full Months, or out of 29 in Cave; then the remainder more 1 will be the Day of the New Moon: did you require to know, for example, what Day of September the New Moon will fall on in a Year, the *Epact* for which is 9; having added 9 to 7 (the *Epact* for September) you ſubſtract the ſum 16 out of 30 (it being a Full Lunation), and the remainder 14 more 1, or the ſum 15 gives you the Day of the New Moon in September.

The reaſon of the Rule will appear very plain, if it is conſidered, that the remainder of the ſubſtraction is the ſecond part of a Lunar Month, the firſt part of which is the known ſum of the two *Epacts*: the remainder, therefore, more 1, will give the firſt Day of the ſubſequent Lunar Month, or, in other words, the Day of the New Moon.

It is to be obſerved, that the New Moon given by the *Epact* is not the Aſtronomical, but is the Civil. The Chriſtian Church, after the manner of the Jews, begin their Lunar Month from the time when the Moon firſt appears to riſe Heliacally in the evening, that is, to emerge out of the Sun's rays, which is about two Days after her Conjunction with the Sun: thus, the Civil New Moon will be found to happen two Days later than the Aſtronomical.

When you have got the Day of the New Moon, if you add 13 to it, the ſum will give you the Day of the Full Moon; but you may have more directly the Day of the Full Moon by the *Epact* of the Full Moon, in the ſame manner as by the *Epact* of the New Moon you have the Day of the New Moon. And thus is to be had the *Epact* of the Full Moon: ſubſtract 13 from the *Epact* of the New Moon, and the remainder is the *Epact* of the Full Moon: in caſe you can not ſubſtract 13 from the *Epact* of the New Moon, you muſt add 30 to it, and then you ſubſtract 13 from the ſum; the remainder will likewiſe be the *Epact* of the Full Moon.

As the Full Moon generally happens the 16th Day from the Aſtronomical New Moon, it will be eaſily underſtood why it happens the 14th from the Civil One.

By the help of the *Epact* you may likewiſe find Eaſter-Day, and conſequently all the depending Moveable Feaſts, in the following manner: you muſt firſt find out the Day of the New Moon of March, if the Annual *Epact* does not exceed 23; otherwiſe, you muſt find out the Day of the New Moon of April: then you add 13 to the found Day of the New Moon, and the ſum will give you the Day of the Paſchal Full Moon: now, the firſt Sunday after the Paſchal Full Moon, will be Eaſter-Day *(e)*. And

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(e) It will, therefore, be requiſite to know what Day of the Week is the Day of the Paſchal Full Moon, and by this means it will be found what Day of the Month is the firſt Sunday after. I have given Tables for this purpoſe: however, I will here propoſe a method to find by calculation the Day of the Week for the firſt Day of March, and conſequently for any other Day in the Year. Divide the hundreds of any number of Years by 4, multiply the remainder of the diviſion by 2, and ſubſtract the product from 4; take notice of the remainder of this ſubſtraction: now add to the number of units, that is, the number expreſſed by the two laſt figures, its fourth part, omitting fractions, and add the noticed remainder beſides; divide the whole ſum by 7, and the remainder will give you the Day of the Week for the firſt Day of March; and in caſe there is no remainder, then the diviſor points out the 7th Day, that is, the Saturday. Suppoſe, for example, you require to know what Day of the Week is the 1ſt of March of the Year of our Lord 5623: you divide 56 by 4, and will have 0 for a remainder;

And by Eaſter-Day, you will be able to determine all the Moveable Feaſts throughout the Year. For example. The firſt Sunday of Lent is ſix Weeks before Eaſter-Day; and the Wedneſday, that precedes the firſt Sunday of Lent, is the firſt Day of Lent, otherwiſe called Aſh-Wedneſday: the firſt preceding Sunday is Quinquageſima-Sunday; the ſecond, is Sexageſima-Sunday, and the third, is Septuageſima-Sunday: it will now be eaſy to ſee how many Sundays there are after Epiphany to Septuageſima-Sunday. Next, the Moveable Feaſts following Eaſter: Rogation-Sunday is five Weeks after Eaſter-Day, and the firſt Thurſday following Rogation-Sunday, is Aſcenſion-Day: Whit-Sunday is ſeven Weeks after Eaſter-Day, and the Sunday after Whit-Sunday, is Trinity-Sunday: now you will eaſily tell how many Sundays there are after Trinity to the firſt Advent-Sunday, which is the fourth Sunday before Chriſtmas.

Rule for finding the Epact *for any Year in any Century after Chriſt.*

Divide the Centuries of any Year by 4; multiply the remainder by 17, and to this product add the quotient multiplied by 43, and the number 86, and then divide the whole ſum by 25: multiply the Golden Number of the Year by 11, and ſubſtract from the product the laſt quotient, fractions omitted; divide this remainder by 30, and the new remainder will be the *Epact.*

Example for the Year 1721.

1°. 17 : 4 = 4 — Rem. 1.
2°. 1 × 17 = 17, &
17 + 4 × 43 + 86 = 275, &
275 : 25 = 11.
3°. 12 (G. N.) × 11 = 132, &
132 − 11 = 121.
4°. 121 : 30

leaves a remainder 1 for the *Epact* required.

We may account for the operation in the following manner:

If the New Moons returned exactly at the ſame time after the expiration of 19 Julian Years, the product of the Golden Number, or Year of the Lunar Cycle, multiplied by 11, would, on certain

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remainder; you multiply the remainder 0 by 2, and will have the product 0; you ſubſtract the product 0 from 4, and will have 4 for a remainder: now you add to 23 its fourth part, which is 5, and alſo add the remainder 4; the whole ſum is 32; this you divide by 7, and you will have 4 for a remainder; then the 1ſt of March of the Year of our Lord 5623 is the 4th Day of the Week, or a Wedneſday: thus, the 8th, 15th, 22d and 29th of March will all be Wedneſdays, the 30th will be a Thurſday, and the 31ſt a Friday; the 1ſt of April, therefore, is a Saturday, as well as the 8th, the 15th, the 22d and the 29th, &c. &c.

Let us now determine Eaſter-Day in the ſame Year 5623: as the *Epact* for this Year is 2, the Paſchal New Moon will be at the 29th of March, and conſequently the Paſchal Full Moon at the 11th of April; but the 8th of April, we have ſeen, is a Saturday, the 11th, then, is a Tueſday, and the firſt Sunday after will be the 16th of April: thus we find, in the Year of our Lord 5623, Eaſter-Day to be at the 16th of April.

conditions, give the *Epact*; but we have already ſhown, that they anticipate 8 Days, or $\frac{200}{25}$ of a Day, in 25 Julian Centuries, and therefore in a Julian Century they muſt anticipate $\frac{8}{25}$ of a Day; and in a Gregorian Common Century, which is one Day ſhorter than a Julian Century, they happen 1 Day—$\frac{8}{25}$, or $\frac{17}{25}$ of a Day later; and conſequently in 3 Gregorian Common Centuries they happen later by $\frac{17}{25}\times 3=\frac{51}{25}$ of a Day: therefore, in 4 Gregorian Centuries, one of which is Biſſextile, they will happen later by $\frac{51}{25}-\frac{8}{25}=\frac{43}{25}$ of a Day; and in this proportion muſt the *Epacts* be decreaſed. Now, in our Example, the product of the Golden Number multiplied by 11, is, after the rejection of the thirties, 11 Days ſhort of the true *Epact*; but the quotient of the number of Centuries divided by 4, multiplied (as the rule directs) by $\frac{43}{25}$, with the addition of the remainder 1 multiplied by $\frac{17}{25}$ amounts only to $\frac{189}{25}$, or 7 Days $+\frac{14}{25}$; therefore, $\frac{86}{25}$ i. e. 3 Days $+\frac{11}{25}$ muſt be added to complete the 11 Days.

You will obſerve, that in caſe the quotient is larger than the number it is to be ſubſtracted from, you muſt divide it by 30, and ſubſtract the remainder; and were the remainder yet too large, you add 30 to the ſmaller number, and certainly then the ſubſtraction will be found practicable.

Rule for finding the Epact *for any Year in any Century before Chriſt.*

Divide the Centuries of any Year by 4; multiply the remainder by 17, and to this product add the quotient multiplied by 43, and the number 180, and then divide the whole ſum by 25: ſubſtract the Golden Number of the Year from 20, and multiply the remainder by 19; to this product add the laſt quotient, omitting fractions, and the ſum, rejecting the thirties from it, will be the *Epact*.

Example for the Year 1002.

1°. 10:4=2—Rem. 2.
2°. 2×17=34, &
34+2×43+180=300, &
300:25=12.
3°. 20—7(G. N.)=13, &
13×19=247.
4°. 247+12=259, &
259:30
leaves a remainder 19 for the *Epact* required.

This operation is moſtly accounted for in a ſimilar manner, as the precedent. The difference here is, that the *Epacts* are to be increaſed; which, it is evident, muſt be the caſe, ſince they are decreaſing in the order direct: it is likewiſe evident, that the Golden Numbers muſt be reverſed, ſo as the Golden Numbers 19, 18, &c. to become 1, 2, &c.; and then theſe are to be multiplied by 19, ſince the *Epacts*, taken in a retrograde order, increaſe by 19.

You will obſerve, that when the Centuries are even, or have only one unit above them, 1 muſt be ſubſtracted from their number, before the diviſion by 4 takes place: for example, if the given number of

Years were 1000 or 1001, you would then divide by 4, 9 inſtead of 10: but this does not at all affect the Golden Number, as it muſt be that of the given Year.

Rule to determine for any Century after Chriſt, if the Cycle of Epacts *is to be changed, or to continue the ſame.*

Add 10 to the Centuries of any Year, and divide the ſum by 25; and if the quotient (the fours rejected) is 0, you add the number 6 to the remainder; if it is 1, you add 3; if 2, 0; and laſtly, if it is 3, you add 9. Then, if the ſum is diviſible by 3 only, and not by 4, or only by 4, and not by 3, the *Epacts* will remain the ſame: if the ſum is diviſible by both 3 and 4, the *Epacts* will increaſe by unit: and if the ſum is diviſible neither by 3 nor 4, the *Epacts* will decreaſe an unit.

Ex. gr. Suppoſe you want to know if the preſent Cycle or ſet of *Epacts* will yet be made uſe of in the next Century, you add 10 to 18, and dividing the ſum 28 by 25, you will have a remainder 3; now to this remainder you add the number 3, (the quotient being 1) and the ſum 6, by being diviſible by 3 only, and not by 4, will ſhow the *Epacts* are to continue the ſame next Century: but you will find they are to be decreaſed an unit the Century after, as you then have the number 7, which is diviſible neither by 3 nor 4.

You will obſerve, that when the remainder is 0, you muſt add the number 4 to it, beſides the uſual number which is likewiſe to be added: admit, for example, the number of Centuries to be 165; you will then have 165+10=175, and 175 divided by 25, gives 7 in the quotient with a remainder 0; now, to 0+9 you add 4, and the ſum 13 will ſhow the *Epacts* are to be decreaſed.

Here ſubjoined you ſee all the poſſible numbers in our caſe, which are diviſible either by 3 or 4 only, by them both, or neither of them:

Diviſible by 3 only, and not by 4, are the numbers 3, 6, 9, 15, 18, 21, 27, 30 & 33.
Diviſible by 4 only, and not by 3, are the numbers 4, 8, 16, 20, 28 & 32.
Diviſible by both 3 and 4, are the numbers 12 & 24.
Diviſible neither by 3 nor 4, are the numbers 1, 2, 5, 7, 10, 11, 13, 14, 17, 19, 22, 23, 25, 26, 29 & 31.

The reaſon of the operation may be evinced in the following manner:

When the Centuries are diviſible by 3 only, and not by 4, then there is both Lunar and Solar Equation, and therefore the *Epacts* will ſtand the ſame: when they are diviſible by 4 only, and not by 3, then there is neither Lunar nor Solar Equation, and the *Epacts* likewiſe will ſtand the ſame: when diviſible by both 3 and 4, then there is only a Lunar Equation, and therefore the *Epacts* are to be increaſed an unit each: and laſtly, when the Centuries are diviſible neither by 3 nor 4, then there is only a Solar Equation, and therefore the *Epacts* are each to be decreaſed by unit. Beſides, the addition of the number 10 to the Centuries, is made, becauſe the period of 25 Centuries, wherein the New Moons anticipate 8 Days, begins 1000 Years before Chriſt. Likewiſe, the rejection of the fours out of the quotient, is made, becauſe after 4 times 25 Centuries, that is, 10000 Years, the Equations both Solar and Lunar will ſucceſſively come in the ſame order as they came 10000 Years before. And laſtly, ſuch number is added to the remainder, that the ſum may be a number liable to the general rule.

I now proceed to ſpeak of the diſpoſition of the 30 *Epacts* in the Calendar. *See* Pages 20 & 21. Truly this diſpoſition of the *Epacts* is very ſimple; they be juſt placed againſt thoſe Days on which they give the New Moons; we find, for example, the *Epact* 30 (or inſtead of it the *Epact* 0) againſt the 1ſt of January, becauſe the *Epact* 30 gives the New Moon for January on that very Day; for a ſimilar reaſon, the *Epact* 29 is ſet againſt the 2d of January; the *Epact* 28, againſt the 3d; and ſo on till the *Epact* 1, which is againſt the 30th; then comes again the *Epact* 30, and ſtands againſt the 31ſt; the *Epact* 29 is againſt the 1ſt of February; the *Epact* 28, againſt the 2d; &c. By the which we ſee, that the *Epacts* will ſucceſſively follow each other in a retrograde order; and they being 30 in number, they will correſpond to 30 Days, and thus denote the 30 Days of the Lunar Months which are Full: but, as there are ſix Lunar Months in the Year, which are Cave, that is, of 29 Days, it was neceſſary to ſet together the two *Epacts* 25 and 24 againſt one ſame Day in thoſe Months, that thus the whole Cycle of the 30 *Epacts*, correſponding to 29 Days only, might denote the 29 Days of the Lunar Months which are Cave.

It is evident, that the effect produced by the ſetting the two *Epacts* together againſt one ſame Day, ought to take place as early as poſſible in the Month, and for this reaſon were choſen the two *Epacts* 25 and 24, as none elſe could have anſwered better the purpoſe: theſe two *Epacts* 25 and 24 thus ſet together will of courſe fall againſt the 5 of February, the 5 of April, the 3 of June, the 1 of Auguſt, the 29 of September, and the 27 of November; by which it appears, that the moſt diſtant terms from the 1ſt of the Month, are the 5 of February and the 27 of November, each equally diſtant, the 5 of February four Days after, and the 27 of November four Days before, the 1ſt of the Month.

As two New Moons can not happen at the ſame Day in a Lunar Cycle of 19 Years, it would be improper to have them pointed out at the ſame Day in the Calendar by the *Epacts* 25 and 24; and for this reaſon it is, that in thoſe Months in which theſe two *Epacts* are ſet together againſt one ſame Day, the *Epact* xxv has been placed by the *Epact* 26, in order that it may be employed inſtead of the *Epact* 25, whenever the two *Epacts* twenty-five and 24 occur in one ſame Lunar Cycle: the ſets of *Epacts* which contain the two *Epacts* twenty-five and 24, are thoſe which, in the general Table of *Epacts*, Page 19, have for indices the figures 1, 6, 9, 14, 17, 20, 25, 28: in theſe ſets, therefore, xxv has been placed inſtead of 25; and it is obſervable, that xxv is only to be met with in thoſe columns wherein the Golden Number exceeds 11; from which it may be deduced, that when a Year has twenty-five for *Epact*; if it has a Golden Number exceeding 11, one muſt take the *Epact* xxv to point out the New Moons in the Calendar; and if it has a Golden Number which does not exceed 11, one muſt take the *Epact* 25.

In the Calendar, againſt the 31ſt of December, you find, beſides the *Epact* 20, the *Epact* xix; this *Epact* is only made uſe of when the *Epact* 19 concurs with the Golden Number 19: as ſuch a Year is the laſt of the ſeven Emboliſmic, the Emboliſmic Month it contains is of 29 Days only, and therefore the laſt Lunation which begins at the 2d of December, as the *Epact* 19 ſhows, ought to end at the 30th; in conſequence of which a New Moon is indicated at the 31ſt by the *Epact* xix. This particular attention has been the more neceſſary, as without it there would have been no New Moon indicated in the Calendar from the 2d of December to the 30th of the following January where there is the *Epact* 1, which is the *Epact* that ſucceeds the *Epact* 19 when this laſt concurs with the Golden Number 19.

There is only one ſet or ſeries of *Epacts* in which the *Epact* 19 correſponds to the Golden Number 19: this ſeries is indicated by 7 in the general Table of *Epacts*, Page 19; and you may obſerve, that there is not the *Epact* 20 in it; the inconvenience, therefore, of having two New Moons pointed out at the ſame Day in the ſame Lunar Cycle by the *Epacts* XIX and 20, is not to be apprehended.

The laſt time when the *Epact* 19 has concurred with the Golden Number 19, has been in the Year of our Lord 1690: it will not happen again before the Year 8511.

Here ends the Treatiſe on *Epacts* I purpoſed.

I WILL now take the opportunity of making a few general obſervations.

1°. We are directed to make the change of the Dominical Letter in Biſſextiles at the Day of the Feaſt of St. Matthias; this Feaſt happens on the 24 of February in Common Years, but is made to fall on the following Day in Biſſextiles, for the reaſon, that the Intercalary Day is meant to be inſerted immediately after the 24 of February: now, this Intercalary Day is denominated the 24 of February as the Day preceding, and anſwers to the Day vulgarly denominated the 25 of February; of courſe, the Days following the Intercalary Day, are denominated the 25, 26, 27, and 28 of February, and reſpectively anſwer to thoſe vulgarly denominated the 26, 27, 28, and 29.

2°. It is almoſt a general practice, to alter the Menſtrual Epacts; as alſo to omit to make the addition of 1 at the cloſe of the operation for finding the Day of the New Moon, as preſcribed in the Rule. We make uſe of ſuch Epacts as give the Civil New Moon; and if we would have the Aſtronomical One, we ought to add 2 to the Annual Epact, ſince it is too low by two units to effect that purpoſe: but the Menſtrual Epacts ought never to be altered; nor ought any part of the operation to be omitted. Elſe, I can not ſee there is any impropriety, taking it in a Civil way, in beginning the Lunar Month from the Moon's firſt appearance in the evening after her Conjunction with the Sun; and beſide, by the Day of the Civil New Moon, may always be had that of the Aſtronomical, ſince it is known, that the Aſtronomical New Moon happens two Days before the Civil.

I muſt farther obſerve, that if the laſt part of the operation for finding the Day of the New Moon, is omitted, as ſaid above, this operation will never agree with that for finding the Age of the Moon; the reaſon is obvious.

3°. It is not always well underſtood why the Epact 0 be employed inſtead of the Epact 30. To remove any difficulty on the ſubject, it muſt be conſidered, that the Epact 30 expreſſes an Emboliſmic Month, and conſequently it is rejected as are all Emboliſmic Months throughout the Lunar Cycle, ſince it would be unneceſſary and even inconvenient to keep them in account in the common uſe of Epacts: then if you reject 30 from 30, the reſult is 0; and thus it is, that 0 is looked at as the Epact to be employed inſtead of the Epact 30: elſe, properly ſpeaking, the real Epact is 30, and not 0; no doubt, the Epacts being expreſſive of the various Age of the Moon ought all to be ſignificative numbers.

There are who employ an Aſteriſk (*), and make it ſignify both 30 and 0; theſe, I find, expreſs the Epacts in Roman Characters, as follows:

I, II, III, IV, V, VI, VII, VIII, IX, X, XI, XII, XIII, XIV, XV, XVI, XVII, XVIII, XIX, (19), XX, XXI, XXII, XXIII, XXIV, XXV, (25), XXVI, XXVII, XXVIII, XXIX, *.

4°. The Epact made uſe of in a Year is the Epact of the Year preceding, but notwithſtanding it is alſo very often ſaid to be the Epact *of* that Year in which it is made uſe of; I have thought proper to avoid this expreſſion, and therefore always ſaid throughout my Work "the Epact *for* ſuch a Year" when meaning the Epact which is made uſe of in that Year: the ſame diſtinction I made in reſpect to Menſtrual Epacts.

5°. Various are the definitions which are given of Epacts, but there is and can be but one that conveys a true notion of their nature, and ſuch definition ought to be given in preference to all others.

FINIS.

TABLE of the CONTENTS

OF THE

APPENDIX.

ETYMOLOGY of the word Epact. Epacts *are of two ſorts*; Annual *or* Menſtrual. *Menſtrual* Epacts *defined. Annual* Epacts *defined. Menſtrual* Epacts *exemplified. Annual* Epacts *exemplified. A Table to ſhow what* Epact *belongs to each Year of the Lunar Cycle of* 19 *Years. The ſame Cycle of* Epacts *will not always hold becauſe of the anticipation of the New Moon. Proemptoſis or Lunar Equation. Metemptoſis or Solar Equation. The different Cycles of* Epacts *are thirty: the different* Epacts *are thirty likewiſe. By means of the* Epacts *the Age of the Moon is determined; and by the Age of the Moon may be known the Days of the New and Full Moons. A particular Rule to find the Day of the New Moon; and by the Day of the New Moon is found that of the Full Moon. To find the Day of the Full Moon by the* Epact *of the Full Moon: how to have the* Epact *of the Full Moon. To find Eaſter-Day by the help of the* Epact; *and by Eaſter-Day to determine all the Moveable Feaſts throughout the Year.* Rule for finding the *Epact* for any Year in any Century after Chriſt. Rule for finding the *Epact* for any Year in any Century before Chriſt. Rule to determine for any Century after Chriſt, if the Cycle of *Epacts* is to be changed, or to continue the ſame. *Of the diſpoſition of the* 30 Epacts *in the Calendar. General obſervations.* 1°. *When the change of the Dominical Letter is to be made in Biſſextiles.* 2°. *Of the bad practice of altering the Menſtrual Epacts; alſo of ſome omiſſion in the operation for finding the Day of the New Moon.* 3°. *Why the Epact* 0 *be employed inſtead of the Epact* 30. 4°. "*The Epact* of *a Year,*" *and* "*the Epact* for *a Year,*" *are two expreſſions of different meaning.* 5°. *What be the proper definition of Epacts.*

ERRATA.

Page 6. lines 19 & 20. *for* to be made uſe of in January &c. *read* to be made uſe of from the beginning of the Year to the Feaſt of Saint Matthias; and the other, from the Day of this Feaſt incluſively to the end of the Year.

Page 27. *The reference is miſplaced*; *it ought to be two lines under*, *thus*: the Year of the Cycle (*c*): ſo, &c.